JUL 27 1944

PAPER TRADE JOURNAL

JULY 20, 1944

Established 1886

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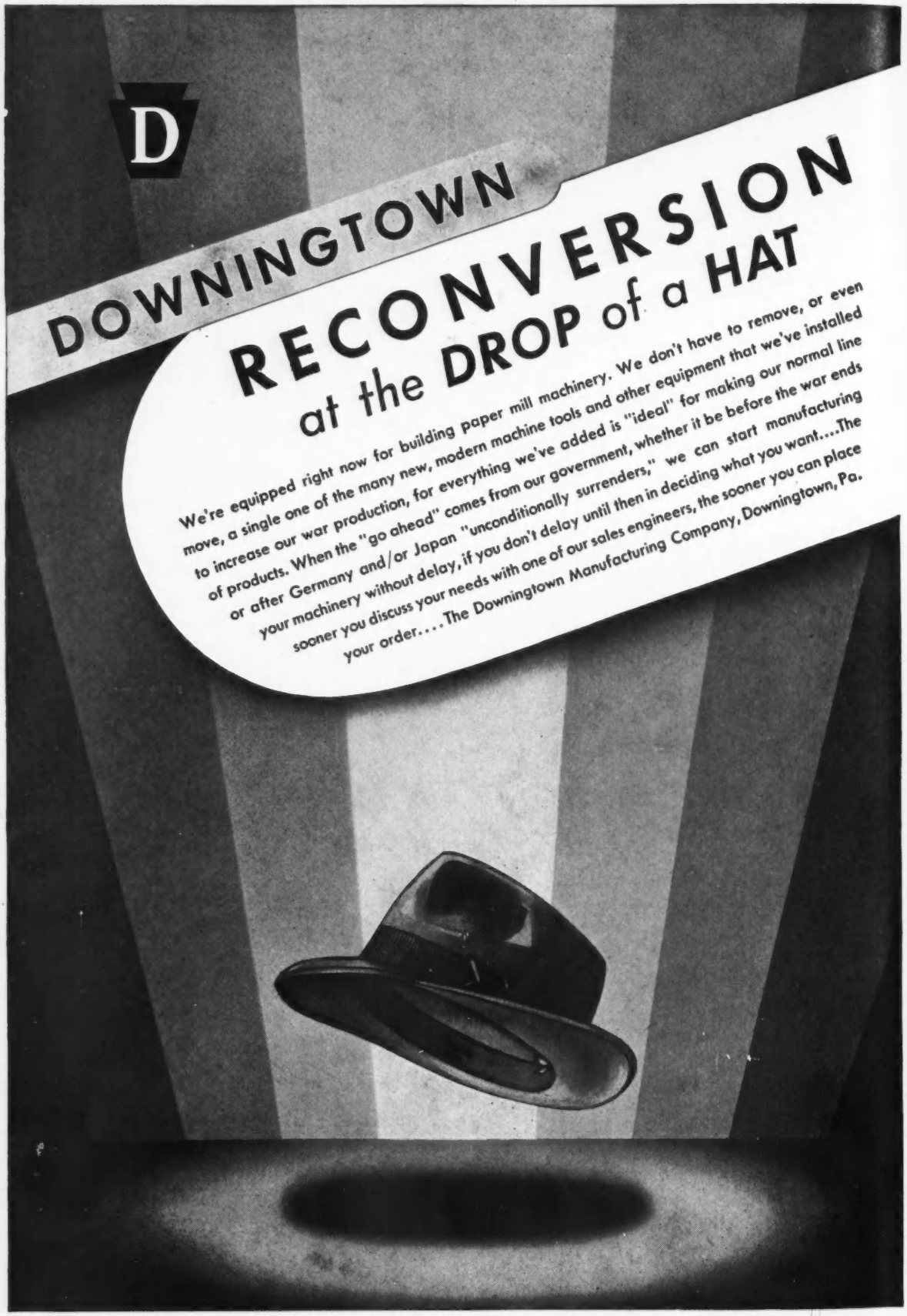
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PAPER TRADE JOURNAL

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Established 1872

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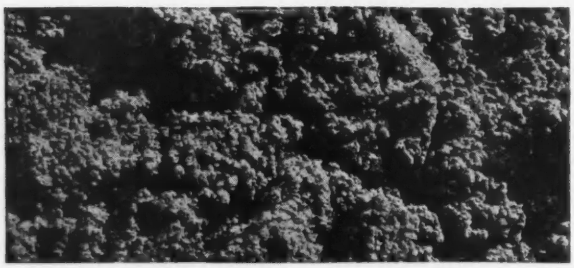

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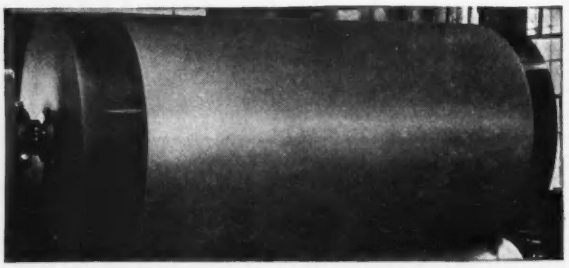

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Vol. 119, No. 3

PAPER TRADE JOURNAL

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July 20, 1944

OPA To Raise Ceiling Prices on Waste Paper

New Maximum Prices Will Be $2 to $5 a Ton Higher on Ten Major Grades of Paper Stock—New and Old Price Ceilings Compared—This is First Increase To Be Granted Since October, 1941.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 16, 1944—The "ceiling" prices for ten basic grades of waste paper are being increased $2 to $5 a ton by the Office of Price Administration to stimulate greater collection and to encourage dealers to pack waste paper properly for mill consumption, according to a press report.

Will Benefit $2.00 Per Ton

Householders, offices, stores and others contributing seven of these grades of waste paper in salvage campaigns will benefit by $2 a ton from the new ceilings, which become effective tomorrow. Dealers purchasing these grades as loose paper are to get the maximum additional of $5 a ton on the same grades if they sell them baled or bundled.

Higher Ceilings on Many Goods

The seven grades are: No. 1 mixed, No. 1 mixed over-issue news, old corrugated containers, mill wrappers, mixed books, and No. 1 heavy books and magazines. Three of these grades—No. 1 mixed, No. 1 news and old corrugated containers—constitute 80 per cent of all waste paper and are the principal items collected in salvage campaigns, OPA pointed out.

The three other grades to which higher "ceilings" have been assigned are: Extra manilas, No. 1 mixed ledger (colored) and No. 1 white ledger. These, the OPA said, come principally from offices.

New and Old Ceilings Listed

The new "ceilings" on the ten grades and comparisons with the previous ceiling prices (per ton, f.o.b. point of shipment) follow:

Grade:	Price "Ceiling" — New Loose	New Baled	Old Loose	Old Baled
No. 1 mixed paper	14.00	19.00	12.00	14.00
No. 1 news	15.00	20.00	13.00	15.00
Over-issue news	17.00	22.00	15.00	17.00
Old corrugated containers	23.00	28.00	21.00	23.00
Mixed books	17.00	22.00	15.00	17.00
No. 1 heavy books and magazines	33.50	38.50	31.50	33.50
Extra manilas	34.00	39.00	35.00	37.00
No. 1 mixed ledger (colored)	35.00	40.00	35.50	37.50
No. 1 white ledger	41.00	46.00	41.50	43.50
Mill wrappers	17.00	22.00	15.00	17.00

This Is First Price Increase

These increases are the first since waste-paper ceilings were established in October, 1941, according to OPA. At that time labor rates were lower, transportation was more plentiful and cheaper, and waste paper that could be collected from homes, offices and stores was in greater supply, it was explained.

A. B. Huyssoon Appointed By WPB

WASHINGTON, D. C., July 19, 1944—A. B. Huyssoon, of the Continental Paper Company, Ridgefield Park, N. J., has been appointed assistant director of the Paper Board Division, in charge of the Box Board and Cartons Branch, the War Production Board announced today. He succeeds Ralph A. Powers, who resigned in June to return to the Robertson Paper Box Company in Monteville, Conn.

As chief of the Box Board and Cartons Branch, Mr. Huyssoon will handle the problems of production, distribution and grades of box board, folding and set-up boxes, R. W. Whitney, Paper Board Division director, said. He will also have liaison duties between the Paper Board Division and other WPB divisions, Government agencies and industry.

Mr. Huyssoon was formerly chief of the Paper Board Section when it was a part of the Pulp and Paper Division, from April to October, 1943. After the reorganization of the Pulp and Paper Division, the Paper Board Section became the Paper Board Division.

The WPB Paper Division has moved its offices from the old Fisheries Building to Temporary Building "D," it was announced by Rex W. Hovey, director of the Paper Division.

C. A. Dickerson To Head Paper Div.

"We are authorized by the Treasury Surplus Properties Division," says A. H. Chamberlain, executive secretary of the National Paper Trade Association, "to announce the appointment of C. A. Dickerson, president of Sabin Robbins Paper Company, as Head of the Paper Division of the Treasury Surplus Properties Division, effective July 20, 1944.

"In the above capacity Mr. Dickerson will be responsible for the handling of domestic surpluses of paper and paper products. Surpluses in foreign countries and surpluses for export will be handled by the Foreign Economic Administration.

"The growing importance of this function in time to come cannot be over-emphasized. Proper handling of this job will go a long way toward stabilization of the market for mills, converters and paper distributors alike during the period of reconversion and return to normal times.

"We are happy indeed to be able to announce the appointment of such an able man from our own group and are confident that our membership as well as our existing Advisory Committee will provide considerable assistance to Mr. Dickerson."

John Strange Co. Hopes to Rebuild Soon

Office and Warehouse Destroyed by Fire at Loss of $150,000 Last Month To Be Replaced — Experts To Visit Consolidated Aircraft Plant — Paper Mills Plan Annual Outings — Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 17, 1944—The fire which swept through the office and warehouse building of the John Strange Paper Company at Menasha, Wis., on June 13 caused a loss of $150,000, it was revealed officially at the semi-annual meeting of the company Thursday afternoon, July 13.

It was the company's second serious fire loss in a seven-month period, and crews from five fire departments battled the flames for 12 hours. Last October another of the company's warehouses burned down. Origin of the fires could not be determined.

The company will start construction of a new building as soon as final plans are drawn up and authorization for the project can be obtained from the War Production Board.

Temporary plans call for a building which will duplicate the foundation size of the ruined structure. The building will be two stories, of steel, brick and concrete. The first floor will house a recreation room, store room and finished paper stock room. The second floor, which will not project the entire length of the building, but only about 25% of the distance, will house the offices and laboratory.

It is expected that the new building will be completed and ready for occupancy within four months after construction has been started. Later another building probably will be erected at the east end of the mill. It will be used for storage purposes.

Mill Officials Meet With WMC

Representatives of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., met recently with N. E. Schulze, area director of the War Manpower Commission, to discuss new rulings governing all male workers.

L. J. Barrette, general personnel manager for the Consolidated mill, said that it had already become the custom under previous regulations to file information concerning employment needs of the employer and that the new order establishes the employment ceiling on the basis of that practice.

To Visit Consolidated Aircraft Plant

Ten British and two Canadian scientists, including men closely associated with development and production of Britain's famous plywood Mosquito airplane, will visit the Consolidated Water Power and Paper Company, at Wisconsin Rapids, Wis., on July 21, and visited the United States Forest Products Laboratory, at Madison, Wis., last week. They planned to confer with officials at both places on wood aircraft research.

The Laminated Process Company, at Portage, Wis., which produces compregnated wood, also was on their itinerary. The Laboratory had an important part in the development of Consoweld, the high-strength paper plastic made at Consolidated's plastics plant at Wisconsin Rapids, and in the product made at the Portage plant.

The British group arrived in the United States about two weeks ago and visited Canadian plants during the last week.

"The British mission," said Carlile P. Winslow, director of the Forest Products Laboratory, "is a followup of a similar U. S. mission which visited England last year."

The mission is headed by Edward Reeve Angel, who has visited America and the Consolidated Mills in the past and who, in England, is a paper manufacturer who uses Consolidated patents, under license.

Schedule Record Pulpwood Sales

Record sales of sawlogs and pulpwood were scheduled last week by the state of Wisconsin at Ladysmith and Crandon, Wis. Two million board feet of sawlogs were to be sold at the former city on July 11, and 4,000,000 board feet of sawlogs, together with 7,500 cords of pulpwood at Crandon on July 12. Proceeds go to the state school fund. The state land commission recently visited the forest area and authorized cuttings on 800 acres near Ladysmith and 3,000 scattered acres near Crandon.

State Labor Board to Conduct Referendum

The Wisconsin State Labor Relations Board will conduct a referendum July 19 at Neenah, Wis., among employes of the Lakeview and Badger Globe mills of Kimberly-Clark Corporation to determine whether the required number of the corporation's employes favor an all-union agreement between Kimberly-Clark and Local 467 of the International Brotherhood of Paper Makers and Local 482 of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, both affiliates of the American Federation of Labor.

Mill Officials Attend Alexander Funeral

Funeral services for Ben Alexander, president of the Masonite Corporation, who died July 6 in Rochester, Minn., were conducted Saturday afternoon, July 8, at the home of his brother J. S. Alexander, Wausau, Wis. The Rev. William Blake, pastor of the first Methodist Church in that city, was in charge. Burial was in Pine Grove Cemetery. Among the large number of business associates who attended was a group of 38 who arrived in a special railway coach. The group included Masonite officials from Chicago, Ill., and Laurel, Miss.

Accepts Women's Production Ideas

Forty-three per cent of the suggestions submitted by members of the Women in Production Service as part of the requirements for promotion in rank have been accepted, the central committee announced last week. Up to that time, 141 suggestions had been received, and 60 accepted, although other acceptances are pending. Announcement of the promotion of about 70 women employes of the Lakeview mill of Kimberly-Clark Corporation, Neenah, Wis., to captain was expected to be made this week.

There is no substitute for Perkins Quality

B. F. PERKINS & SON, Inc.
HOLYOKE, MASS., U.S.A.
LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD

Midwest Sees Improvement in WPB Program

Manpower Shortage Peak Believed Reached and More Goods For Civilian Use Looked For in Future—Salesmen Hear Informative Talk — Newspaper Survey Reveals Many Changes — Other News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., July 17, 1944—The Chicago market expresses less pessimism than one might expect with the continued pulp shortage and not too great success in getting enough reclaimed paper to keep the wheels running. There is less optimism concerning the possibility that prisoners will solve the manpower shortage as the production of these prisoners is reported as not comparable with the work done by American labor itself. However, there is the feeling that the manpower shortage has reached its peak and a pronounced confidence that the WPB program to stimulate civilian goods production whenever possible will be helpful in emphasizing the problems of the paper trade. Many Chicago paper executives also feel that from now on Congress and the Administration will be paying far more attention to the problems of business itself .

Locally, civilian order backlogs continue to multiply to the point where only essential civilian goods orders are being recognized by local jobbers and sales offices. Krafts continued exceptionally scarce as do all elements of the board industry. Newsprints were in similar condition with the outlook none too good until possibly late in the fourth quarter. Sulphites were in strong demand with more requirement to be met from the military to crystallize the severe shortage condition now xeisting. Waste paper collections were reported as "only fair."

Salesmen Hear Informative Talk

The western division of the Salesmen's Association of the Paper Industry held one of its most interesting meetings on July 10 at the Hotel Sherman with more than fifty salesmen and guests present to hear Eugene Phillips discuss inside conditions in war torn Europe. Mr. Phillips was a resident of Vienna for twenty-five years and, as sales executive of an ink making concern, had ample opportunity to study conditions in most European countries. He and his family escaped from Austria just at the time of the invasion. His recount of this story was, in itself, sufficient to make the meeting unusually interesting. However, Mr. Phillips added other details as to the systematic planning of the parade to power of Hitler, pointing out that long before the actual invasion members of the Schusnigg party were subject to close scrutiny even without expecting that espionage was in full operation. He then showed the difficulties of ever uniting even Europe into a "one world" arrangement, illustrating his point by pointing out the necessity for passports, foreign currency and arrangements for journeys comparable to a Chicagoan's trip to Milwaukee, 90 miles distant, and Hammond, Indiana, 30 miles away.

While the speaker, who is now identified with the Pettibone-Mulliken Company, did not go too deeply into the war picture (and thus permitted an even more interesting and understandable story to develop) he did say that he felt the German phase of the War would be over no later than next Spring—and possibly earlier because the Germans might collapse "almost overnight." He expects Hitler to avoid suicide but felt it more likely that he would be murdered by some of his own associates. On this "cheerful" note, the salesmen adjourned one of the most entertaining and instructive meetings in some time, with congratulations to Carl Trost of Hollingsworth & Whitney, for making the arrangements.

Newspapers Report on Shortages

The Inland Daily Press Association, with headquarters in Chicago, has just completed a survey as to the extent to which circulation, advertising and population increases have complicated the problems which newspapers have in complying with restrictions of order L-240. The summary (from dailies using 25 tons or more per quarter) showed a 15.8% decrease in newsprint consumption as of the first quarter of 1944 compared to the first quarter of 1941. On the other hand, circulation was 9.17% up. Pages printed showed a 14.13% increase but total advertising inches was up only 2.24%. The total columns of unpaid content showed a 20.32% decrease and the percentage of advertising to total space in the newspapers reporting was 18.04% up.

Users of from 25 to 125 tons showed an 18.34% decrease in pounds of newsprint used per subscriber; the 125-250 tons class showed a 17.28% decrease and 250 to 500 tons showed a 16.18% decline.

The Inland Association also listed some 200 ways in which newspapers had reported methods of conservation in spite of increases in circulation and in advertising. Reduced space to fraternal notices, elimination of continued stories, more careful editing, reduction of column rules and reduction of heads to a maximum of two decks were among the conservation methods reported.

J. W. Butler to Locate in Buffalo

Buffalo's gain is Chicago's loss in the case of T. W. Utterback, formerly of the J. W. Butler Paper Company, Chicago, who has recently accepted a position as general manager of the Holland Paper Company at Buffalo, New York. Mr. Utterback was with the Bradner Smith & Company for four years prior to his connection with the Butler organization during which accumulation of years he has developed a splendid background of knowledge in the fine paper field.

One of the outstanding speakers at last week's Lithographers Association meeting in Chicago was R. I. Drake, executive of the Champion Paper and Fibre Company, who outlined to an appreciative audience the closeness with which mill executives watch the public demand and the direct way in which this initial demand effects the manufacturer of new lines of paper. He stressed the continued efforts made by technical experts to improve present lines and to incorporate improvements in new lines in direct relations to suggestions from paper users such as the lithographers themselves.

PAPER PROFITS ARE REAL PROFITS

Paper production profits come from two sources: more or better production, and lower costs. On both counts, Westinghouse can help you.

Completely co-ordinated electrical equipment, designed and built by Westinghouse for all phases of paper mill operation, will bring you increased efficiency —greater capacity with existing facilities. Paper quality, too, will improve as a result of closer control and more effective drives.

When you specify Westinghouse electrical equipment you get the benefit of engineering skill that has been used successively and *successfully* on each new electrical problem of the paper industry. The result is co-ordinated equipment, designed to give the maximum in efficient, trouble-free operation with a minimum of investment. Undivided responsibility for the proper functioning of all equipment required in the generation, transmission and utilization of electrical energy means less outages—a minimum of down time.

Westinghouse is your electrical partner from log to shipping room. May we help you? Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa.

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"TOP OF THE EVENING"
MON. WED. FRI. 10:15 E.W.T., BLUE NET.

ELECTRICAL EQUIPMENT FOR THE PAPER INDUSTRY

Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 19, 1944—Parker Young Company has been awarded the contract for furnishing the Government Printing Office with 250,000 pounds of bond paper on the open market at 10 cents per pound. Other awards made on open market bids include the following:

Parker Young Company will also furnish 50,000 pounds of blue bond paper at 10 cents and the Northwest Paper Company will furnish 43,313 pounds of white offset paper at 7.57 cents. Whitaker Paper Company will furnish 90,415 pounds of white writing paper at 8.2 cents and the same firm will furnish the same amount of the same at the same price.

Barton, Duer & Koch Paper Company will furnish 156,000 pounds of white coated paper at 7.04 cents and the Franklin Research Company will furnish 11,220 pounds of white litho finish paper at 19.525 cents. Watervliet Paper Company will furnish 11,200 pounds of white offset paper at 9.46 cents and Barton, Duer & Koch Paper Company will furnish 300,000 pounds of white book paper at $20,420. Watervliet Paper Company will furnish 12,000 pounds of white offset paper at 9.55 cents and Barton, Duer & Koch Paper Company will furnish 150,000 pounds of book paper at $10,980. The same firm will also furnish 151,996 pounds of white book paper at 7.8 cents and the Franklin Research Company will furnish 24,250 pounds of white chart paper at 19.525 cents.

Franklin Research Company will furnish 14,630 pounds of white chart paper at 19.525 cents and the same firm will also furnish 30,500 pounds of same at the same price and 33,200 pounds of same by the same firm at the same price. Stanford Paper Company will furnish 300,000 pounds of white writing paper at 7.37 cents and the same firm will furnish the same amount of paper at 7.31 cents. Paper Young Company will furnish 63,000 pounds of yellow C.W. writing paper at 10 cents and Barton, Duer & Koch Paper Company will furnish 43,100 pounds of white blanks at $47.20 per M.

Groveton Paper Company will furnish 125,160 pounds of buff bond paper at 8.7 cents and the Cauthorne Paper Company will furnish 135,000 pounds of white wove chemical paper at 7.05 cents and the R. P. Andrews Paper Company will furnish 175,500 pounds of same at 7.27 cents. The Cauthorne Paper Company will furnish 26,600 pounds of pink chemical wood mimeograph paper at 8.25 cents and the Eastern Corp. will furnish 80,000 pounds of same at 9.36 cents. The Mudge Paper Company will furnish 4,640 pounds of white photo gelatin paper at 13.25 cents.

The Cauthorne Paper Company will furnish 67,000 pounds of white chemical writing paper at 7.63 cents and the Consolidated Water Company will furnish 103,600 pounds of white machine book paper at 7.63 cents. Barton, Duer & Koch Paper Company will furnish 40,000 pounds of melon wood board at $2,640 and the Eastern Corp. will furnish 96,000 pounds of white offset paper at 7.95 cents.

Walker, Goulard Plehn Company will furnish 22,635 pounds of water resistant paper at $2,829.38 and the Mathers-Lamm Paper Company will furnish 44,000 pounds of No. 1 binders board at $93.77 per ton. The same firm will also furnish 20,000 pounds of same at $937.70.

Bermingham & Prosser will furnish 200,000 pounds of white writing paper at 7.38 cents and the Whitaker Paper Company will furnish 100,000 pounds of same at 7.98 cents. Walker Goulard & Plehn will furnish 1,818 pounds of V mail paper at 29 cents. Northwest Paper Company will furnish 2,500,000 sheets of white S writing paper at 7.86 cents.

WPB Appeals for Paper Salvage

Because the present critical paper shortage shows no signs of abating and may become increasingly critical during the remainder of the year, the Conservation Division of the War Production Board has appealed to all State and local governments to redouble their efforts in paper conservation and salvage, WPB reports.

In copies of a letter sent to the Council of State Governments, the American Municipal Association and the United States Conference of Mayors, all in Washington, and to a number of State and municipal government heads, Howard Coonley, director of the Conservation Division, WPB, said that many State and local governments already have done an excellent job in lining up an organization to effect the desired results.

Attached to each letter was a summary entitled "Paper Conservation for State and Local Governments," which described briefly the program used by the District of Columbia government for conservation and salvage of paper.

"The Conservation Division would appreciate greatly your distributing this suggested program as widely as possible, since we feel that while many governments already have taken the desired steps toward paper conservation and salvage, there probably are some who would benefit by having a fairly specific plan laid before them," Mr. Coonley said in the letter.

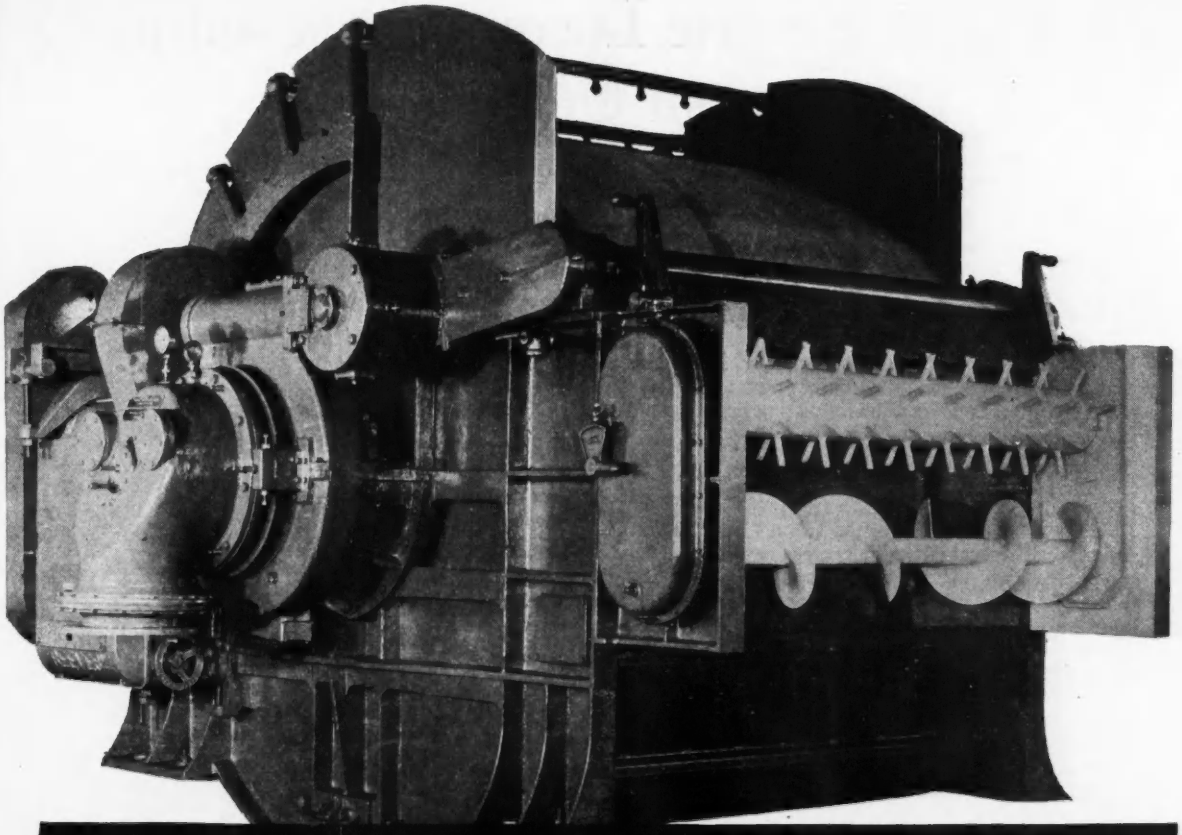
Copies of the program entitled "Paper Conservation for State and Local Governments" may be obtained from the Conservation Division, War Production Board, Room 240, Temporary D Building, Washington 25, D. C.

To Represent Beveridge Paper Co.

W. J. Blackley, sales manager of the Beveridge Paper Company, Indianapolis, Ind., has issued the following statement:

"Effective August 1 Leonard Fitzgerald has been appointed manager of Philadelphia office and the surrounding territory. Mr. Fitzgerald has been very active in the paper business for many years and we are sure he will continue to give you the same kind of service you received from the late Arthur Sherrill. Mr. Fitzgerald is also taking over Mr. Sherrill's office in the Lafayette Building, 5th and Chestnut streets, and in addition to this will have as his secretary Miss A. M. Curley who was with Mr. Sherrill the last year and a half and who is very conversant with the Philadelphia teritory."

In addition to representing The Beveridge Paper Company, Mr. Fitzgerald will continue to represent Hummel-Ross Fibre Corporation, of Hopewell, Va., and Schmidt & Ault Paper Company of York, Pa.



CUT PULPING COSTS WITH *Stainless*

Clean, low-cost pulp production is a vital first-step in the manufacture of high-quality, profitable paper. ARMCO Stainless Steels can be an important help to you here.

In both sulphate and sulphite pulping, Stainless will give your equipment longer life. This is especially valuable in the case of sulphite pulping, which presents severe corrosion and maintenance problems.

For one thing, ARMCO Stainless Steel eliminates the danger of rust contamination. The smooth surface encourages an even flow of material, resists abrasion, promotes agitation, and keeps down slime and bacteria deposits.

Naturally, Stainless is easy to clean and keep clean. With proper design you get strong, light-weight construction and save money on both original cost and maintenance. For example, one mill has welded sheets of 18-12 Mo Stainless to the interior of the digestor, resulting in a highly satisfactory lining and less upkeep.

Remember ARMCO Stainless Steel for your new equipment after the war. It is available now for repair and maintenance work. The American Rolling Mill Company, 1651 Curtis Street, Middletown, Ohio.

EXPORT: THE ARMCO INTERNATIONAL CORPORATION

THE AMERICAN ROLLING MILL COMPANY

STAINLESS ARMCO STEEL

Diesel-Electric Locomotive Used as "Coal Unloader"

By Ralph S. Clark[1]

A unique development in coal unloading was worked out several months ago at the Parchment, Michigan, plant of the Kalamazoo Vegetable Parchment Company, manufacturers of food protection papers. It has proved so satisfactory in every respect that we thought it worth relating.

Because of the tremendous output of KVP papers, a huge coal pile must be maintained to supply the necessary power for production—it takes a pound of coal to make a pound of paper.

When coal is received at the power plant, it is first dumped into the concrete receiving pit from the hopper cars, from where the cranes with their clamshell buckets transfer it to the storage pile. In winter, especially, the coal sticks or freezes to the sides of the hoppers which makes the coal dumping slow and difficult. Quick unloading was accomplished by the addition last December of a 25-ton General Electric diesel-electric locomotive for switching and coal car unloading, part of the work which was formerly assigned to the two 20-ton steam locomotive cranes. Another reason for the development was to relieve the slow-moving cranes of a long switch haul and the direct impacting of cars to shake out the coal, thus avoiding possible attendant damage to the cranes.

Anxious to Insure Quick Unloading

We were very anxious to insure the quick unloading of incoming coal cars, releasing them within 24 hours after spotting for return to the mines, as a definite help toward relieving the wartime car shortage. This required a capacity of up to 20 cars per 8-hour working day. The average consumption is six cars per day.

Before deciding on the purchase of a locomotive for this work and the general yard switching, representatives of KVP went to the G.E. locomotive plant in Erie, Pa. for a test demonstration to determine the size of locomotive and how the job should be done. The original idea was to use the weight and the momentum of the locomotive for impacting loaded cars on the 200-foot trestle over the unloading pit, as was formerly done with the crane at 2 mph, thereby shaking the coal from the car. A crane had to hit a car from 12 to 16 times to empty it. In Erie a test set-up was made and an East Erie Commercial Railroad 65-ton diesel-electric performed the demonstration under our direction. We abandoned this idea as it was felt that using a locomotive for impacting at from 4 to 6 mph would be too severe as steady practice, and would require too heavy a locomotive.

[1] Engineer, Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

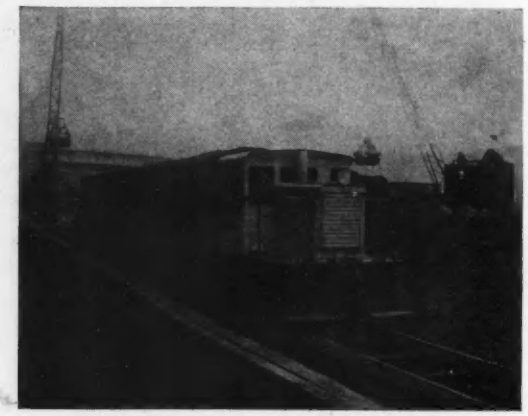


FIG. 2
Two Coal Cars Are Placed in Position for Unloading on the 200 Foot Long Unloading Trestle. The Locomotive Pulls off with One.

An Alternate Scheme

An alternate scheme was adopted (the one we are employing successfully), which is to use a 25-ton locomotive to accelerate a loaded car, releasing it before impact with the car or cars being unloaded, following up, recoupling, and repeating the cycle. Two cars can be unloaded at once, if necessary, with only

FIG. 1
When the Railroad Delivers a Train to the Kalamazoo Vegetable Parchment Plant, This 25-Ton Diesel-Electric Picks It up and Delivers the Cars at Their Proper Destinations.

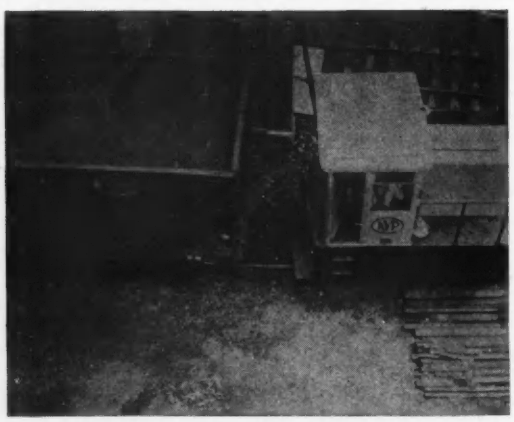
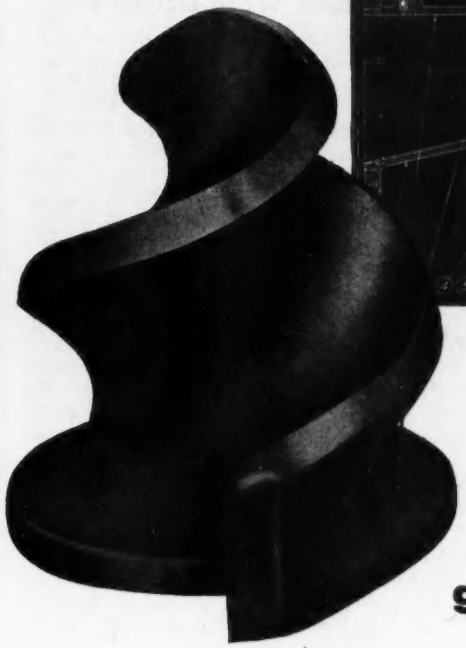
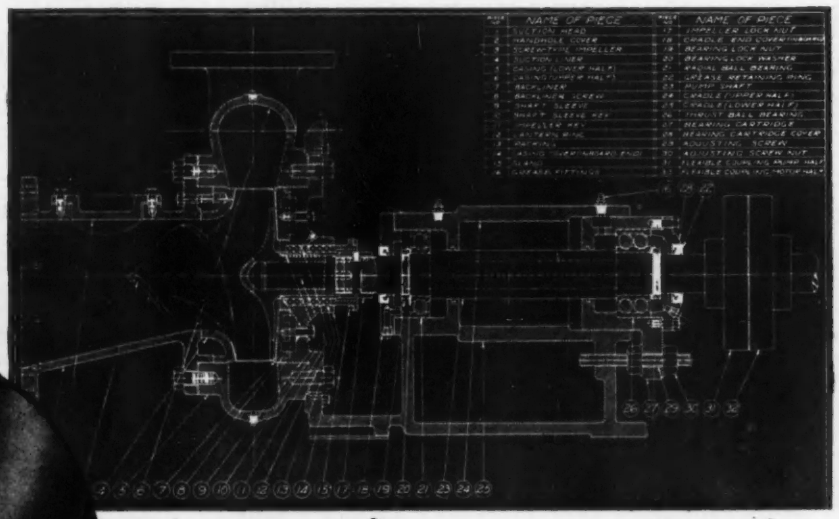


FIG. 3
. . . Then Accelerates It back for Impact. Note the Coupler Separating as Operator Opens the Air-Operated Coupler-Pin-Puller and Shuts off the Throttle.

Special Lombard Design Screw Type Impeller For High Density Stock





7 Reasons Why LOMBARD PUMPS

give reliable service in Paper Mills

1. **IMPELLER**, with helical screw type inlet vanes, feeds stock without dehydration. Parabolic shape of vanes eliminates excessive power consumption when operating with throttled discharge. Reverse side of impeller has eductor vanes to prevent binding and reduce stuffing box throat pressure.
2. **CASING**, diagonally split, permits removal of rotor without disturbing connections. The lower half of the pump casing contains the vertical-up-discharge nozzle.
3. **BEARING PEDESTAL** supports and maintains pump casing alignment with shaft and bearing. Pedestal divided on horizontal centerline to permit easy removal of rotor.
4. **BEARINGS**, ball type, grease lubricated and fully protected against dirt and moisture. Thrust bearing housing has axial adjustment feature of rotor.
5. **SUCTION NOZZLE** permits free flow of heavy stock to impeller eye at moderate velocity. Large size hand hole opening provided.
6. **SHAFT** will carry any radial thrust load at any point on performance curve. Impeller shaft nut construction permits reduction of normal overhang.
7. **COUPLING** amply proportioned to carry load and compensate for any slight misalignment that might develop.

Write for further details.

ARMY E NAVY

LG LOMBARD Governor CORPORATION

ASHLAND MASSACHUSETTS

Sales Office: 60 East 42nd Street, New York 17, N. Y.

FIG. 4
Impact! The Rear Car Is Almost Empty on the Second "Hit".

four to six "hits", and there is no excessive strain on the locomotive.

Develop Coupler-Pin-Puller

KVP engineers developed and built an air-operated coupler-pin-puller which we applied to the locomotive. This gives the locomotive operator control of the coupler; it also promotes safety for the switchman, as it is not necessary for him to ride the locomotive.

The former unloading speed, with cars in good condition, was approximately two cars per hour. By using the diesel, four to six cars per hour are now unloaded. This includes hauling the delivered cars from a point about 1300 feet from the coal pit, with one switch being made each way.

Release Six to Ten Cars Daily

KVP is now releasing six to ten empty coal cars the same day received. We have gained a great saving in time, and although our coal receipts during the storage season have been only about 80% what they were a year ago, we have saved the necessity of overtime work for a minimum of three and a maximum of eight of our men. Operating costs have been surprisingly low; the diesel consumes only 1½ gallons of fuel oil an hour. Other supplies and maintenance have been negligible for the diesel, and maintenance on the cranes has been reduced by at least 30 per cent. We built a new two-track "garage" for the diesel and the cranes. Under one track is a completely equipped servicing pit. Maintenance is under the supervision of our Operating Engineer, A. W. Petersen.

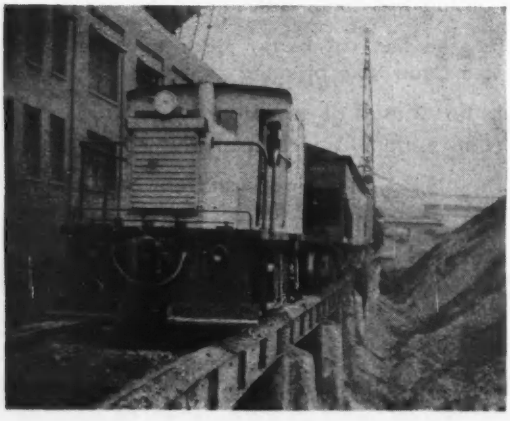


FIG. 5
The Locomotive Coasts in for Recoupling as Coal Still Spills from the Rear Car.

New Richmond Work Dedicated

The Warwick Chemical Company's new Richmond works plant at Wood River Junction, R. I., which was ceremoniously dedicated on June 28, is expected to be in operation on or shortly after August 1.

This will be the fourth operating unit for the Warwick Chemical Company, other plants being located in West Warwick, R. I.; Rock Hill, S. C., and Chanute, Kan. Sales offices are at 580 Fifth avenue, New York City, and a research laboratory at 221 West 57th street, New York City.

The Richmond works was named in honor of Frank Richmond, chairman of the board of directors of the Warwick Chemical Company, and chairman of the board of the Crompton Company. The principal speakers at the dedication ceremonies were His Excellancy J. Howard McGrath, Governor of the State of Rhode Island, Ernest Nathan, president of the Warwick Chemical Company, and Frank Richmond.

The dedication concluded the annual three-day meeting of all Warwick sales and executive personnel which was held in West Warwick and Providence, R. I.

Governor McGrath paid tribute to Mr. Nathan, who is one of the founders of the Warwick Chemical Company, and who is chiefly responsible for its rapid growth.

Mr. Nathan traced the growth of Warwick from a small building in West Warwick, R. I., to its present state of expansion.

Other speakers included Town Clerk Oscar Barber of Richmond, R. I., and Mowry Lowe, popular New England radio star, who was also master of ceremonies.

A gold key was presented to Mr. Nathan by John Rogers, contractor.

A shore dinner at Point Judith concluded the affair.

New "Ruptair" Circuit Breaker

Following the trend toward oil elimination in indoor switchgear equipment, a new "Ruptair" magnetic type air circuit breaker has been developed by Allis-Chalmers Manufacturing Company, Milwaukee, Wis., and is now available in high voltage, oil-less switchgear rated 5,000 volts and below and 150,000 kva interrupting capacity and below. The "Ruptair" breaker has overall dimensions as compact as standard oil breaker switchgear, with all parts readily accessible.

In the new air breaker the arc chute has been carefully coordinated with the contact and are runner design to give consistent and reliable interruption through the entire range of current to be interrupted. The magnetic circuit, consisting of one husky blowout coil and two laminated iron pole pieces per phase, is arranged to force the arc up into the arc chute immediately upon separation of the arcing contacts.

Complete inspection and maintenance of the self-contained contact assembly can be accomplished without disturbing the arc chute or magnetic circuit in any way.

Obituary

W. G. Clark

W. G. Clark, chairman of The Western Paper and Manufacturing Company, The Anglaize Box Board Company, and The Terre Haute Paper Company, Dayton, Ohio, died on June 25.

Mr. Clark was born on a farm near Troy, Ohio, in 1864, and was graduated from the Troy High School.

He was employed by the Tytus-Gardner Paper Company at Middletown as general office utility man in 1894. Two years later he took the position of assistant superintendent of the Tytus-Gardner Company and in 1897 became a salesman for Heller & Merz Company, selling paper mill colors. Later he took charge of a mill in Connecticut, making a specialty of all kinds of colored board and paper. This mill has passed into history and the name cannot be recalled.

In 1902 Mr. Clark joined the Weston Companies as Superintendent of The Terre Haute Paper Company in Terre Haute, Indiana. In 1925 he became Vice President and on Mr. Weston's death in 1932 he became President and General Manager, which position he held until 1936 when he retired from active participation in the Companies' affairs and became Chairman of the Board.

On retirement, he went to live in Ft. Myers, Florida, where he passed away. Mrs. Clark preceded him in death in May, 1944.

Joel F. Talbot

Joel F. Talbot, 94, retired business man and former president of the Dennison Manufacturing Company, died July 3 in the home of his daughter, Mrs. William R. Tucker, 1723 Asbury avenue, Evanston, Ill., with whom he had made his home. Mr. Talbot, who retired in 1929, also was formerly president of Dolese & Shepherd Company and the Chicago and Illinois Western Railroad Company.

He joined the Dennison Company in 1867 in Boston, Mass., and came to Chicago in 1869, where he worked continuously except for a brief period in St. Louis, Mo. He was a member of the Chicago Athletic association, a past president of the Chicago Jewelers' association, and a vice president of the Central Free dispensary. Other affiliations included the Colonial War society and the Mayflower society.

Survivors are two daughters, Mrs. William E. Guylee of Evanston and Mrs. Tucker, and a son, Benson A. Talbot of Pasadena. Services were held in the chapel at Rosehill cemetery, and interment followed in the Rosehill mausoleum.

George A. Thompson

George A. Thompson, 75, retired superintendent of the Whiting Paper Company, Holyoke, Mass., and father of City Auditor Ralph J. Thompson, of that city, died July 11 at his home, 11 Highland avenue, Holyoke. He had been associated with the Whiting company for 55 years and served as superintendent for 41 years, retiring in 1941.

He began his paper-making career as a boy with Winona Paper Company, which later became the Gill division of the American Writing-Paper Corporation. At 16 years of age he joined the Whiting firm when it was operated by the late Congressman William Whiting. Mr. Thompson taught the paper-making business to the late William F. Whiting, Secretary of Commerce under President Coolidge, and the younger Mr. Whiting's three sons.

He is survived by his wife; five sons, George A., Jr., Stuart R., Ralph, Jr., William M., and Charles of Holyoke; five daughters, Mrs. Raymon Moriarty, Mrs. Henry L. Southier, Mrs. Edward J. Bayon and Mrs. Robert Hano of this city, and Mrs. P. V. McIntyre of Memphis, Tenn.; three brothers, Edward, William and Frank, and a sister, Mrs. John Chaloux, all of Holyoke.

Raymond B. Nichols

Raymond B. Nichols, assistant treasurer of the Storrs & Bement Company, Boston, Mass., died Sunday, July 9, in his 40th year, after a short illness. Mr. Nichols started in the employ of Storrs & Bement Company about twenty years ago as assistant cashier. A few years later he was promoted to credit manager. In 1929 he was elected assistant treasurer and member of the board of directors of the company. He was a member of Golden Fleece Lodge, A. F. and A. M., Lynn, Mass.

He was born in 1904 in Lynn. He attended the public schools of that city and was later graduated from the Bentley School of Accounting. Mr. Nichols resided in Wellesley, Mass. He is survived by his wife, daughter and mother.

Funeral services were held at the Wentworth Chapel, Waltham, Mass., July 12 and out of respect to his memory the Boston office and warehouse of Storrs & Bement Company were closed at 12 o'clock, noon, that day.

Colin J. MacIver

Colin J. MacIver, 38, manager of the Order and Estimating Departments of Hollingsworth & Whitney Company, Boston, Mass., and a resident of Natick, Mass., was instantly killed recently when his car skidded on a wet pavement so that he was thrown from the automobile.

Mr. MacIver was held in great esteem for his ability and was warmly regarded by all who were associated with him. He was born November 13, 1906, receiving his education in Newton, Mass., and was graduated from the Newton High School. He took a position with Hollingstworth & Whitney on his 18th birthday in 1924, progressing by successive steps to the position held at the time of his death. His wife, three small sons, his mother and father, a sister and two brothers are living.

W. F. Dorflinger

William Francis Dorflinger Jr., Ohio representative of the du Pont Company cellophane division, died at his home in Cleveland last week. Until five years ago he was a resident of this city. His age was 42.

Mr. Dorflinger, who was born in New York, had just entered Princeton University when the United States entered the first World War. He left the university and joined the U. S. Navy. He was a grandson of the late Christian Dorflinger, pioneer glass manufacturer, and also a grandson of the late Catholina Lambert, art collector and silk manufacturer.

Besides his widow, he leaves a daughter, June Lambert Dorflinger; two sisters, Mrs. L. D. Joralemon and Isabel Lambert Dorflinger, and two brothers, Lambert Dorflinger and Louis E. Dorflinger.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending July 15, 1944

STOCKS

	High	Low	Last
A. P. W.	4⅛	3¾	3⅞
Armstrong Cork Co	44¼	43½	43¾
Celotex Corp.	14⅞	14⅜	14⅜
Celotex Corp., pf.	20	18	18⅜
Certain-Teed Products Corp.	8¾	8⅛	8⅛
Certain-Teed Products Corp., pf.	103½	88¼	102½
Champion Paper & Fibre Co.	29⅛	28⅞	29¼
Champion Paper & Fibre Co., pf.	114½	114	114
Congoleum Nairn Co.	27⅛	26½	27⅛
Container Corp. of America	27	26¼	26¼
Continental-Diamond Fibre Co.	12⅞	12⅜	12½
Crown-Zellerbach Co.	19¼	18⅜	19
Crown-Zellerbach Co., pf.	101⅞	101½	101⅜
Dixie Cup Co.	18⅜	17⅜	17¾
Dixie Cup Co.—A	46	45¼	46
Flintkote Co.	25¼	24½	25⅜
Flintkote Co., pf.	107½	107½	107½
Robert Gair	5¼	4⅞	5⅛
Robert Gair, pf.	17	16½	16½
International Paper Co.	19⅜	18⅝	19
International Paper Co., pf.	84½	83½	84½
Johns-Manville Corp.	98½	96¾	98½
Johns-Manville Corp., pf.	....	....	....
Kimberly-Clark Corp.	38¼	38¼	38¼
MacAndrews & Forbes	29¾	29⅜	29½
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	47	44¼	45½
Mead Corp.	11⅞	11⅜	11½
Mead Corp., pf. A-6%	95	95	95
Mead Corp., pf. B-5½%	....	....	....
National Container Corp.	18⅞	17¼	18⅛
Paraffine Companies, Inc.	60½	58¾	58¾
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	18	16¾	17⅛
Rayonier, Inc., pf.	33	32	32¾
Ruberoid Co.	34⅞	33½	33⅝
Scott Paper Co.	42¾	42¼	42½
Scott Paper Co., pf.	109½	109¼	109¼
Sutherland Paper Co.	33	33	33
Union Bag & Paper Corp.	13	12⅝	12⅞
United Paperboard Co.	6⅝	6¼	6⅜
U. S. Gypsum Co.	82¼	80⅞	82¼
U. S. Gypsum Co., pf.	175	175	175
West Virginia Pulp & Paper Co.	28	26	26
West Virginia Pulp & Paper Co., pf.	107¾	107¾	107¾

BONDS

Abitibi Pulp & Paper Co. 5s '53	83⅛	83⅛	83⅛
Celotex Corp. 3¾ '55	103¼	103	103
Certain-Teed Products Corp. 5½s '48	102	102	102
Champion Paper & Fibre Co. 4¾s '50	....	....	....
International Paper Co. 6s '55	108½	108	108
International Paper Co. 5s '47	104½	104½	104½
Mead Corp. 3½s '53	....	....	....
West Virginia Pulp & Paper Co. 3s '54	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending July 15, 1944

STOCKS

	High	Low	Last
Great Northern Paper Co.	35⅞	35⅛	35¼
Hummel-Ross Fibre Corp.	7⅜	6⅝	7⅛
St. Regis Paper Co.	6⅝	6⅜	6½
St. Regis Paper Co., pf.	....	....	....
Taggart Corp.	6⅛	6	6

BONDS

American Writing Paper Co. 6s '61	....	....	....

Nekoosa-Edwards Co. Meet This Month

The Nekoosa-Edwards Paper Company will have its annual stockholders' meeting starting at 9 o'clock in the morning of July 19 at its offices at Port Edwards, Wis. Officers are: John E. Alexander, president; Guy O. Babcock, vice-president; C. A. Jasperson, secretary-treasurer, and Harry Deyo, assistant secretary.

Marathon Corp. Nets $866,234

The Marathon Corporation (Formerly known as Marathon Paper Mills Company) reports for the six months to April 30, unaudited net income, based on figures filed with the Securities and Exchange Commission, was $866,234 on net sales of $14,060,157. For the year ended October 31, 1943, the adjusted net income was $1,261,581 on net sales of $25,381,260.

Abitibi Co. Issues Good Report

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., July 17, 1944—An analysis of the 1943 annual report of the Abitibi Pulp and Paper Company, Ltd., reveals that substantial progress was made in several directions, despite the fact that the company set up full reserves for accrued interest, "interest on interest," the possible need for meeting interest in U. S. funds, and the possible liability for payment of the exchange on the capital distribution already made to bondholders.

Among the features of the report may be mentioned the following: 1. Reduction on over-all funded debt, including interest accrued, "interest on interest," and reserve for foreign exchange liability (except on principal not yet repaid), to $70.6 millions at the end of 1943, compared with $75.4 millions a year previously. 2. An increase of working capital of $796,713 after reducing indebtedness as above, $975,000 being realized from the sale of Espanola assets during 1943. (A payment of $9,170,730, Canadian funds, or 19% of bond principal, was made June 30, 1943). 3. An increase in balance carried to surplus to $930,853, from $330,714 the previous year, after $4.5 millions depreciation, $3,377,240 interest and $1 million for taxes. 4. A reduction in deficit forward to $13,297,376 from $14,369,266 after writing $130,758 off interest in G. M. Mead Co. and after other sundry adjustments. Operating profit increased from $8,749,392 in 1942 to $9,808,094 in 1943.

A shortage of labor and the withdrawal of electric power for war requirements resulted in a decrease in pulpwood inventory by March 31, 1944, to approximately 605,000 cords compared with 701,550 cords at March 31, 1943. Expectation is that it will be found possible to operate the Smooth Rock Pulp mill at approximately full capacity throughout 1944, but that shipments of new grade pulp, from the newsprint mills of the company, will be substantially less during 1944 than in 1943, due to shortage in pulpwood and woods labor.

Consolidated Co. To Hold Meeting

Consolidated Water Power and Paper Company stockholders will have their annual meeting Wednesday, July 26, and the company's main offices at Wisconsin Rapids, Wis. Present officers are: George W. Mead, president; Stanton Mead, vice-president, and Ralph R. Cole, secretary.

Flintkote Earns $1.50

The Flintkote Company for the fifty-six weeks to June 17, reports a net income of $1,604,441, after $200,000 reserve for contingencies, including possible renegotiation, equal to $1.50 a share on common stock. No comparison is available.

Acquire Titanium Dioxide Facilities

The Calco Chemical Division, American Cyanamid Company, has announced the acquisition of the Titanium Dioxide Manufacturing Facilities of the Virginia Chemical Corporation in Piney River, Va., from the Interchemical Corporation. This organization, formerly a part of the United Color and Pigment-Interchemical set-up, now becomes a unit of the Pigment Department of the Calco Chemical Division with J. Allegaert as manager and A. B. Hettrick as resident manager of the Virginia operation.

A Neat Package

Today, when the "carriage trade" may be more accurately described as the "carry trade", attractive boxes are a must.

As color is frequently the only decoration, special care must be taken in dyeing the box-board.

H & M Pheno Black SGN Conc. is used extensively by board mills for producing the popular level grays and blacks and the soft, warm colors so desirable in box-making.

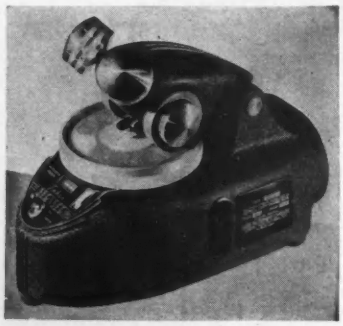
In the beater, on all types of fiber, Pheno Black SGN Conc. finds universal acceptance because of its direct dyeing action and its high degree of fastness to light, bleeding and rubbing.

Heller & Merz Department
CALCO CHEMICAL DIVISION
AMERICAN CYANAMID COMPANY
Bound Brook, N. J.
New York, Chicago, Philadelphia,
Boston, Charlotte, Providence.

COLORS BY CALCO

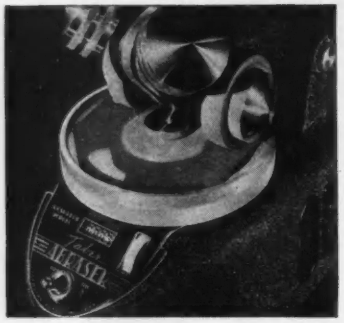
New Table for Taber Abraser

A new type specimen table for the Taber Abraser that permits testing paper products in moist or wet condition has been announced by Taber Instrument Corporation, North Tonawanda, New York.



This specimen table holds a sufficient amount of water to cover the specimen when performing "wet tests" (on any type of paper or paper product).

The wearing action is performed



by dual Calibrase wheels bearing against the specimen under constant pressure, revolving in opposite directions, one sliding radially toward the outside, the other sliding toward the inside of the wear path. Each wheel revolving at a steady constant speed through contact with the specimen, exerts a combined abrasive compressive and twisting action twice in each revolution of the specimen holder. Because the specimen holder travels a complete 360 degree circle, the wear due to differences of grain or weave are fully revealed. A standardized load adjustment is provided for varying the pressure of the Calibrase wheels against the specimen so the Abraser will test both delicate and tough materials with equal precision.

The results of tests are reported either numerically as the number of "wear cycles" to produce a given amount of wear, or as "loss in weight" when weighed on a precision laboratory balance.

The Taber Abraser is self-contained and is ready to operate by simply plugging into any electrical line. Simplicity of operation and calculation make this Instrument ideal for laboratory tests and sales demonstrations.

Complete information on the "Taber Abraser" is available by writing Taber Instrument Corporation, North Tonawanda, New York, for bulletin 4012.

Announces Changes in Forest Service

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 19, 1944—Three major changes among the directors in charge of the twelve forest and range experiment stations operated by the Forest Service, U. S. Department of Agriculture, in widely separated sections of the country, have been announced by Chief Forester Lyle F. Watts.

Dr. Irvine T. Haig, Forest Service research scientist recently returned from Chile, South America, where he headed a technical forest mission sent to appraise the forests of that country at the request of the Chilean government, becomes director of the Appalachian Station at Asheville, N. C. He succeeds Richard E. McArdle, former director, who was recently promoted to be assistant chief in charge of the Division of State and Private Cooperation with headquarters in Washington.

Elwood L. Demmon, since 1928 director of the Southern Station at New Orleans, La., becomes director of the Lake States Station at St. Paul, Minn. He succeeds Dr. Raphael Zon who retires in August after 43 years of continuous work with the Forest Service.

Charles A. Connaughton, since 1938 director of the Rocky Mountain Station at Fort Collins, Colo., becomes director of the Southern Station. Mr. Connaughton's successor has not been named.

Paper Firms Assessed for Reservoir

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., July 15, 1944—Paper mills in this section have been notified of their assessment under the fifth annual levy for the maintenance and operation of the huge Sacandaga Reservoir which already has proven of great benefit. The reservoir was constructed several years ago and has proven of great aid in drouth periods. The total assessment for operation is $85,000. In Washington county the United Paperboard is assesed $1,108.40; Fort Miller Pulp & Paper Company, $683.40; Hudson River Power Company and International Paper Company, $251.60; Union Bag and Paper Corporation $4,539, $1,180.65 and $1,180.65. In Rensselaer county the West Virginia Pulp and Paper Company is assessed $34.85. In Albany county the Ford Motor Company is to pay $1,677.90. In Saratoga county the West Virginia Pulp and Paper Company is assessed $1,267.35 and $1,202.75.

The total assessment for the construction of the reservoir is $600,690. In Rensselaer county the West Virginia Paper Company pays $246.28 and in Saratoga county $17,455.55. In Washington county the United Paperboard Company is assessed $7,833; Fort Miller Pulp and Paper Company, $4,829.55 and the Union Bag and Paper Corporation, $40,420.43.

Rules on Paper Board Conversion

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 19, 1944—No charge can be made by paper board producers east of the Rocky Mountains for the conversion into paper board of raw materials belonging to a customer, the Office of Price Administration announced today.

This prohibition has been incorporated in the paper board regulation effective July 22, 1944 to eliminate certain conversion charges which are resulting in price increases, OPA explained. Mills have offered to convert raw materials, chiefly waste paper, into paper board for a service charge, with ownership of raw materials as well as the finished product remaining with the customer, generally a paper board box manufacturer. The practice developed under the current shortages of waste paper and paper board, and is resulting in a higher cost for paper board than the prevailing ceiling prices, OPA said.

OPA said that established practices must be continued, whereby the paper board mill, purchases the raw materials, converts them into paper board, and sells the paper board at or under existing ceilings. It is expressly stipulated that no producer, and no agent or representative of a producer, of paper board can make a charge for any services rendered in converting raw materials into paper board, and no person can pay or offer to pay any such charge.

BEFORE YOU SPECIFY A VALVE
Make Sure It is the One You Need

TODAY, when it is more important than ever before to keep pipe lines flowing at maximum efficiency, too much care cannot be given to selecting the right valve for each job. Before you "draft" a valve for that all-important line, make sure it is the one you really need.

Here is the answer to a frequently-asked question on valve selection, taken from the files of The Kennedy Valve Manufacturing Co. Other problems will be considered in succeeding advertisements in this series.

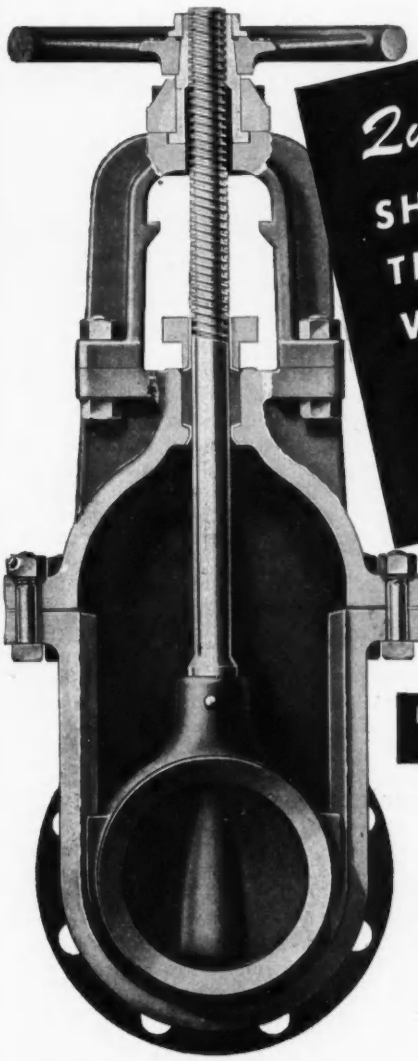


Fig. 1

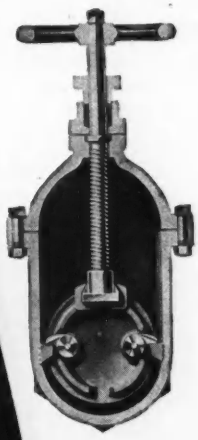


Fig. 2

Question:

SHOULD YOU USE VALVES THAT SHOW AT A GLANCE WHETHER THEY ARE OPEN OR CLOSED?

Answer:

The rising-stem of outside-screw-and-yoke gate valves provides visual indication of disc position (see figure 1). Whether or not this construction should be chosen depends on installation conditions and the fluid being handled. Rising stems require more headroom, and the external threads are exposed to atmospheric conditions, although this is not a serious drawback in most cases as the threads are easy to lubricate. Non-rising stems (see figure 2) do not require additional headroom but, because disc position is not apparent to the eye, excessive operating strains may result from attempting to turn the handwheel in the wrong direction. The outside screw is preferable with corrosive fluids because the stem threads are out of contact with the substance handled.

If you have a valve selection problem, write to us. As Kennedy makes a complete line of standard gate, globe, angle and check valves, you can be sure of receiving unbiased help. For full description of Kennedy valves, pipe fittings and fire hydrants, send for 240-page Kennedy Catalog.

KENNEDY VALVES • PIPE FITTINGS • FIRE HYDRANTS
THE KENNEDY VALVE MFG. CO. • ELMIRA, N. Y.

Urges End of 30-Pound Newsprint

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 19, 1944—Recommendations that the Printing and Publishing Division of the War Production Board eliminate the use of experimental 30-pound newsprint by all United States newspaper publishers were unanimously adopted this week by the Newspaper Publishers Industry Advisory Committee, WPB announced today.

The recommendations were based on a report submitted by a special sub-committee, which consisted of 10 newspaper publishers from all sections of the United States, representing users of 80% of the total newsprint consumed in this country.

The report of the special committee appointed to study the 30- and 32-pound newsprint problem was presented to Arthur R. Treanor, director of the Printing and Publishing Division. Its aim is to standardize newsprint production in order to assure maximum production of newsprint in North America, WPB said.

It was recommended that, irrespective of any reduction that publishers who order 30-pound paper might be required to accept under Order L-240, any 30-pound newsprint in a publisher's inventory be consumed on the same basis as 32-pound.

A report on the over-all newsprint situation estimated that the total newsprint supply for U. S. consumption in the last half of 1944 is approximately 273,000 tons per month. Barring a failure in pulpwood deliveries from Canada, available supplies in the third and fourth quarters should amount to 1,638,000 tons, WPB officials said. Third-quarter usage was reported as 655,536 tons. Consumption in the fourth quarter will be 781,166 tons, it was estimated.

Allowing 15,000 tons for appeals in the last half of the year, and reserving 176,000 tons for all other uses, total consumption in the last half of 1944 will be 1,627,702, it was estimated. This would leave a balance of 10,298 tons, but it was estimated that inventory adjustments might require about 19,000 tons, which would indicate an over-all shortage of 8,702 tons, based on presently known requirements.

Award $84,297 for Hoornbeek Mill

[FROM OUR REGULAR CORRESPONDENT]

KINGSTON, N. Y., July 17, 1944—An award of $84,297.77 has been made to the owners of the Hoornbeek Pulp Mill, on the Rondout Creek at Napanoch, by a commission of appraisal headed by Francis Martocci of Kingston, because the mill has been put out of business by New York city taking the water of the Rondout Creek for water supply purposes.

The award made by the commission, which besides Mr. Martocci, consists of Jacques W. Bascal of New York and John J. Murphy of Albany, includes in addition to the $84,297.77, the sum of $2,000 for counsel fees and $3,252.23 for expenses and disbursements.

The mill manufactured wood flour used in the making of linoleum, dynamite and various types of plastics and used the water of the Rondout Creek for power. The owners are, according to the report of the commision filed in the Ulster county clerk's office yesterday, Arthur V. Hoornbeek as special guardian of Frances Hoornbeek, Ethel Dunlop, Arthur V. Hoornbeek, the sole surviving executor and trustee under the will of John C. Hoornbeek who died June 9, 1938.

Salvage Logging Waste

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., July 8, 1944—Small diameter logs, heretofore left in the woods as waste after logging operations and estimated to contain 20 per cent of the original cut, are now being cut and prepared for pulpwood as the final link in the experiment of salvage logging waste sponsored by the Powell River Company, the Comox Logging Company, and the B. C. Provincial Government on Vancouver Island.

Initial shipment of rafts arrived at Powell River recently, containing 504,000 board feet of pulpwood, and a small sawmill unit capable of cutting 25,000 board feet per 8-hour shift, went into operation.

Unique in the experiment is the fact that all materials used in shipping and conversion may be classed as salvage, inasmuch as the baling wire to make the small logs into bundles of the rafts is scrap, and the sawmill unit was constructed by Powell River Company mechanics from used materials.

The new sawmill unit used only four men and a scaler, and was built adjacent to the company's large main sawmill, which has a capacity of 500,000 feet a day.

In the woods, the small-diameter cuttings are yarded by light tackle to trucks in logged-over areas and boomed at Ladysmith grounds of the Comox Logging Company. The logs run from six to 60 feet in length, with a boom average of 26 feet.

The present operation, the Powell River Company indicated, was purely of an experimental nature to determine if the yield would justify this method of handling logging waste for conversion into pulpwood. Under present price conditions, the log buyers have a larger margin to work on than they might at other times, but the entire experiment, since first broached about a year ago, has been watched with keen interest by logging and pulpmill executives.

The undertaking originally grew out of an idea by R. J. Fillberg, managing director of Comox Logging Company, who noticed that in the operation of small sawmills there was a considerable over-run of scale. The logs yielded more than was expected when cut to timber.

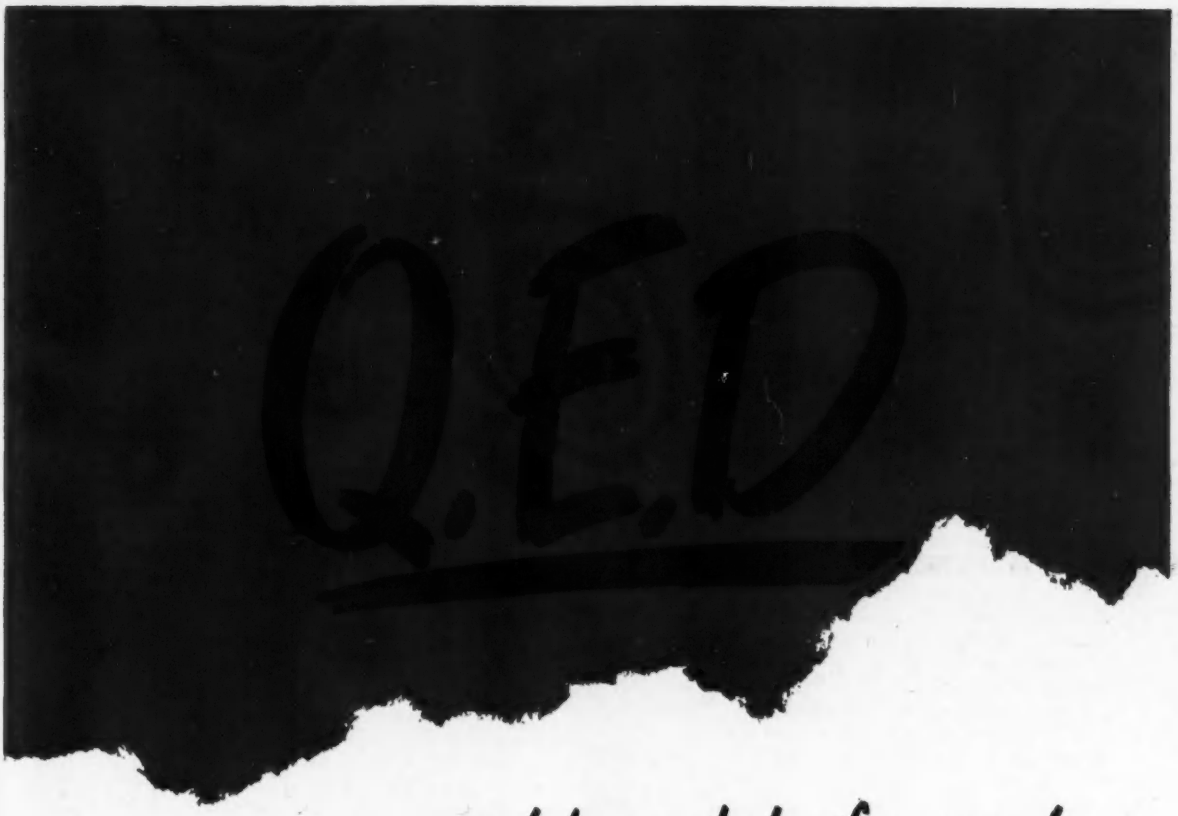
James Sheasgreen, superintendent of Comox Logging Company, said that the plan would have the effect of increasing forest reserves by 20 per cent. It is at present confined to Hemlock areas, a wood ideally suited for pulp-making, and is, Mr. Sheasgreen pointed out, "bringing this cinderella of the woods into its own."

WPB Appoints Russell W. Whitney

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 12, 1944—Harold Boeschenstein, Director of the Forest Products Bureau, War Production Board, today announced the appointment of Russell W. Whitney as Director of the Paper Board Division to succeed the late G. C. Otto who had resigned on June 16 to return to his company, the Alton Boxboard Company, Alton, Ill. The appointment became effective July 4. Mr. Otto died July 4 in St. Louis, Mo.

Mr. Whitney has been associated with WPB since January, 1944, first serving as a consultant in the Paper Production Program, and later as deputy director of the Paperboard Division. Mr. Whitney has an extensive experience of many years in the paper industry and is on leave of absence as vice-president of the Hinde & Dauch Paper Company.



...and by a whale of a margin

In chipper knives, like medicine, it isn't the price of the prescription *that's important*—it's the cost of the cure.

A Heppenstall E.I.S. Knife, for instance, is more expensive to manufacture than any other brand, yet in actual use it costs the least. History proves it—Heppenstall guarantees it—they say—"we *guarantee* our knives to show a unit cost below any other on the market and we include *all* of the following factors: (1) Operating hours between grinds. (2) Grinds per knife. (3) Chipper 'down-time.' (4) Sawdust loss. (5) Oversized chips."

Q. E. D.—Quod Erat Demonstrandum (which was to be demonstrated)—Heppenstall Knives will reduce your chipping costs—consistently—unquestionably—and by a substantial margin. Write for details. Heppenstall Company, Pittsburgh, Pa.

HEPPENSTALL

E. I. S. Chipper Knives

Changes Made in Used Board Prices

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 19, 1944—Five changes have been made in the regulation establishing ceiling prices on used paper board containers to encourage the return and reuse of these vitally needed containers, the Office of Price Administration announced today.

The changes, which are effective July 19, 1944, are:

1. A maximum delivered price of five cents each will be permitted for sorted small containers where the ceilings on them, as determined by weight of each container, would be less than five cents. This change, which will be particularly helpful in the drug trade where many containers are small, is expected to increase the flow of small containers back to the original users as well as to dealers. Where sales of these small containers are made f.o.b. seller's premises, a maximum price of 4¾ cents each is permitted.

2. The $4 hundredweight delivered ceiling on reusable or reconditioned containers, sorted by size and brand name, applicable to dealers and emptiers will be allowed only on sales to original users of the containers. Previously the ceiling was allowed regardless of who bought the containers. This will encourage the flow of containers back to their original users, for whom they have maximum utility. Emptiers are those buyers of the merchandise originally in the containers who empty the goods out of the containers.

3. A new group of reusable or reconditioned containers, those sorted by original user's name, is set up, applicable to sales by either dealers or emptiers to original users. A delivered ceiling of $3.50 per hundredweight is established for this group. This change will be helpful to emptiers who have no facilities for extensive sorting but are able to segregate all containers received from one company.

4. The $3.75 per hundredweight ceiling on reusable or reconditioned containers sorted by size is made applicable to sales by dealers only. Heretofore it has been applicable to any seller. The change will help dealers to carry on their normal operations on containers which cannot be resold to original users, and at the same time encourage emptiers to sell as many containers as possible to original users.

5. A "catch-all" group of reusable or reconditioned containers is established to include any sorted containers that may not qualify for the $4, $3.75 or $3.50 ceilings. A ceiling of $2.25 per hundredweight delivered is established for this group. The five cent maximum price allowed on small containers does not apply to this group.

Continuing unchanged are the ceilings of $2.25 per hundredweight for reusable unsorted containers, and $1.75 per hundredweight for repairable containers.

Paper Mills Plan Annual Outings

Employes of a number of Fox River Valley paper companies are making plans for their annual picnics or similar outdoor events.

The Gilbert Paper Company, Menasha, Wis., will have its family picnic on Sunday, August 13, in Smith park. Among the features will be the appearance of Tarbell, "Master of Eyeless Vision," an Illinois magician; Norma Ballard, organist, who recently completed an engagement at the Palmer House in Chicago; a dance in the evening; games in the afternoon and evening for children and adults. Committees were to be appointed this week by Clarence Elmgren, general chairman.

A horseshoe tournament will be a feature of the annual picnic of employes of Kimberly-Clark Corporation, Neenah, Wis., which is to be held Sunday, July 23, at Riverside park in that city for the corporation's mills at Neenah. The tournament will be held on the Neenah High School horseshoe courts. Employes of the three mills and main office at Neenah are eligible to compete. Nick Verhagen and Phil Lewis are co-chairmen. Specialty acts similar to those at the picnic last year will be obtained.

Employes of the George Banta Publishing Company, Menasha, Wis., and their families will have their twelfth annual picnic at Waverly Beach, near Menasha, on Saturday, July 22.

June Newsprint Statistics

Production of newsprint in Canada during June 1944 amounted to 246,846 tons and shipments to 268,213 tons, according to the News Print Service Bureau. Production in the United States was 61,106 tons and shipments 60,648 tons. The output in Newfoundland was 22,035 tons and shipments were 31,024 tons making a total North American production of 330,005 tons and shipments of 359,885 tons. Total production in June 1943 was 348,657 tons and shipments were 372,308 tons.

The Canadian mills produced 36,769 tons more in the first six months of 1944 than in the first six months of 1943, which was an increase of two and five tenths percent. The output in the United States was 60,431 tons or fourteen and seven tenths percent less than in the first six months of 1943; in Newfoundland production was 33,820 tons or thirty-six and three tenths percent more, making a net increase of 10,158 tons, or five tenths of one percent more than in the first six months of 1943.

Stocks of newsprint paper at the end of June were 76,028 tons at Canadian mills, 7,374 tons at United States mills, and 47,554 tons at Newfoundland mills, making a combined total of 130,956 tons compared with 160,836 tons on May 31, 1944, and 142,548 tons at the end of June 1943.

Simplify Controls of Fiber Drums

Fiber shipping drums and pails have been placed under simplified controls with the revocation of Fiber Drum Conservation Order M-313 and the issuance of Fiber Drum Limitation Order L-337, the War Production Board has announced.

Substantially the same controls that existed under M-313 continue, but paper work is greatly reduced as fiber drum delivery will no longer be specifically authorized by WPB.

The new Fiber Drum Order, L-337, established two schedules that list all products approved for shipment in new fiber drums. No letter of application to WPB is required for any listed product.

Schedule A includes several classifications—chemicals, foods, petroleum products and some miscellaneous items, such as clay and soap. In all, more than 100 products and groups of products are authorized, by this schedule, for shipment in new fiber drums. Schedule B authorizes the use of fiber drums, under quota limitations ranging from 100% to 50% of 1943, for paints and their ingredients and for lubricating greases. All products authorized by the schedules of L-337 were commonly shipped in new fiber drums under the revoked M-313.

No packer is permitted more than a sixty-day inventory of fiber drums.

Award to Foster Wheeler

The marine separately-fired superheater type steam generator, engineered and developed by Foster Wheeler, is standard equipment on naval combat ships. This design proved an influential factor in the development of stationary boilers incorporating the separately-fired superheater furnace principle and culminating in the Twin Furnace Steam Generator.

FOSTER WHEELER CORPORATION
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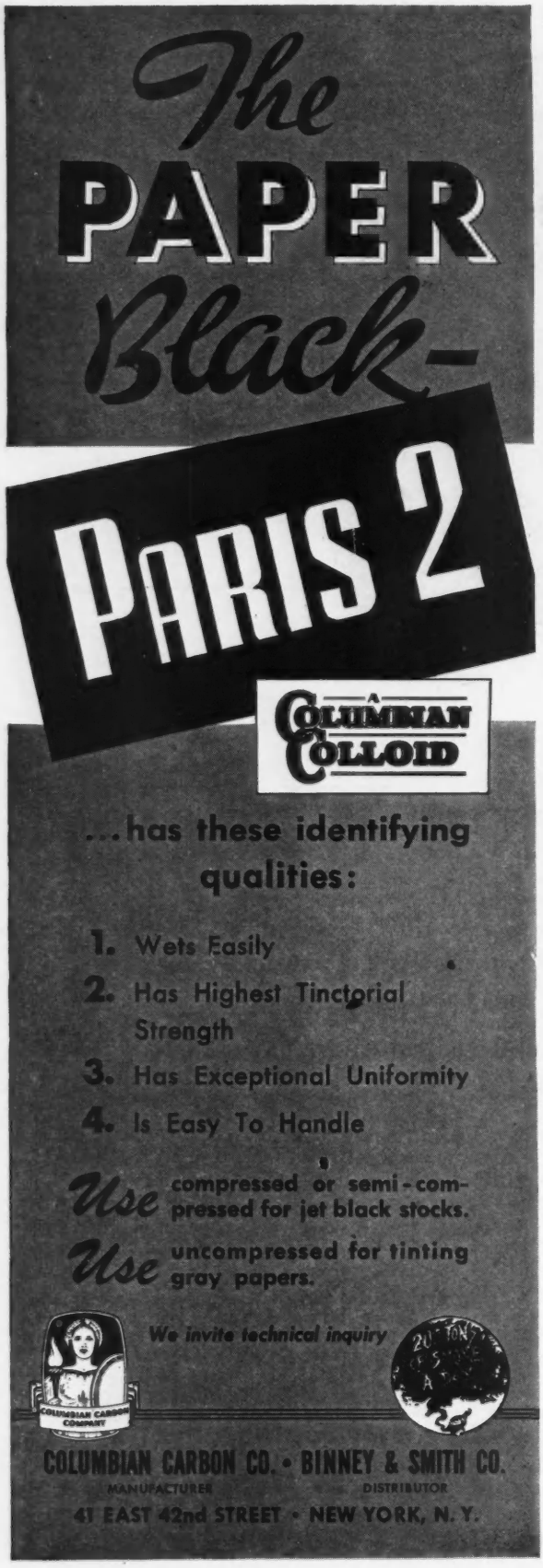
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...has these identifying qualities:
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Salvages 9 Million Pounds of Cartons

The national paper salvage campaign has been given added impetus by the report to the War Production Board that Schenley Distillers Corporation's country-wide carton reclamation drive had resulted in the recovery of more than 9,000,000 pounds of paper board shipping containers during the first seven months of its extension into 45 states.

The 4,500 tons of cartons reconditioned and returned to use by the company from the beginning of November to the first of June, according to the report submitted by Charles P. Englebardt, Schenley executive, represent the recovery of critical supplies in amount equal to approximately 10 per cent of the total tonnage of corrugated shipping containers used annually by the nation's distillers before the war.

The seven-month figure, in terms of materials released for war, was sufficient to make 19,500,000 packages for Army "K" rations, and an additional 12,000,000 blood plasma containers, he pointed out.

The program now being intensified to ease the critical paper supply situation's currently comprising the No. 1 war material shortage, Englebardt said, follows the course of action suggested in the conservation plan for the distilled spirits industry drawn up in 1941 by Lewis S. Rosenstiel. Tracing the shape of things to come, the Schenley board chairman predicted at that time that in the event of war as much as 40 per cent of the 45,000,000 to 50,000,000 paper board cases used by the entire industry in an average year could be recovered for repeated use.

Retailers throughout the country, according to the salvage executive, have been contacted, either by a company representative or through distributors, and given instructions for adoption of the following conservation procedure recommended by the WPB:

1. Open all cartons with greater care, avoid ripping, tearing and soiling.

2. Collapse cartons carefully, tie in convenient bundles and store in a place that is positively dry.

3. Accumulate as large a quantity of cartons as possible and notify a company representative for shipping instructions.

Corrugated pads, liners and partitions, in addition to the cartons, are returnable for reconditioning and eventual reuse. Damaged material that cannot be reconditioned at company plants is routed to scrap dealers and paper mills.

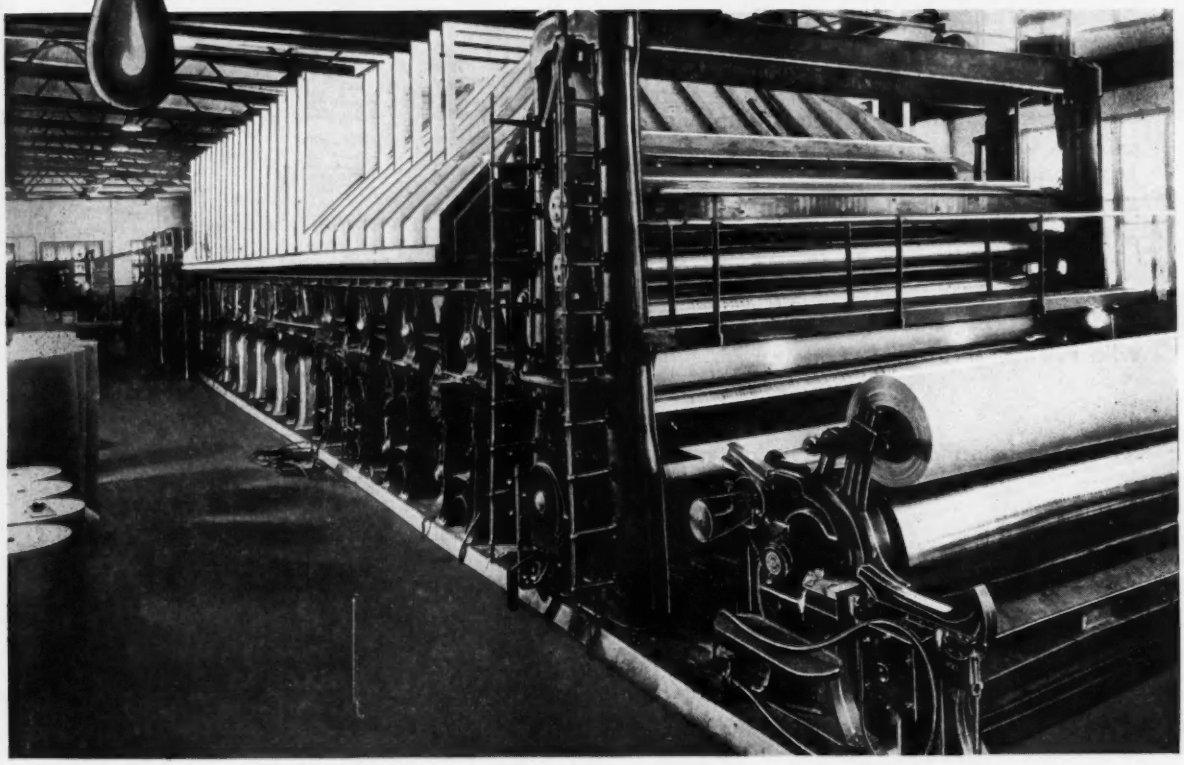
To Control Paper for Food Uses

The proposal of the War Production Board Paper Division to place 100% of the paper stock used in manufacturing sanitary food containers under reserve production control was endorsed recently by the Special Industrial Paper Industry Advisory Committee, WPB Paper Division officials said last week.

The plan of controlling all paper required in the manufacture of paper cups and food containers, milk bottles, hoods, covers and caps is being considered by the Paper Division in order to assure maximum production of these essential products and to distribute equitably the available supply of manufacturing materials, the officials explained.

The committee also approved a number of technical changes in Schedule XVI of the paper standardization and simplification order -120, particularly as it affects tag boards, time cards and file folders, which will relieve certain hardship cases reported by the industry.

CORRECT Lubrication means *Better Maintenance*



PROBLEM excessive wear, difficult maintenance.

SOLUTION – *Correct* lubrication.

Sinclair STEAM CYLINDER and VALVE OILS provide *correct* lubrication for engines. These oils meet all requirements from extremely wet to highly superheated steam conditions... suit all engine designs and operating conditions.

For highly efficient lubrication of rolls, calenders, gear units, chain drives and bearings use Rubilene Oils, Opaline Gear Lubricants, and Sinclair Bearing Greases.

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(Write for "The Service Factor"—published periodically and devoted to the solution of lubricating problems.)

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Process your semi-Chemical stock and fiber. Plenty of rolling action. Make fiber pliable without cutting. Develop more Mullen and Tear.
Maintain the Freeness. *Do it with a Bauer Pulper.*

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Two sizes—36″ and 24″ diameter Discs, with full range of Plate Patterns.

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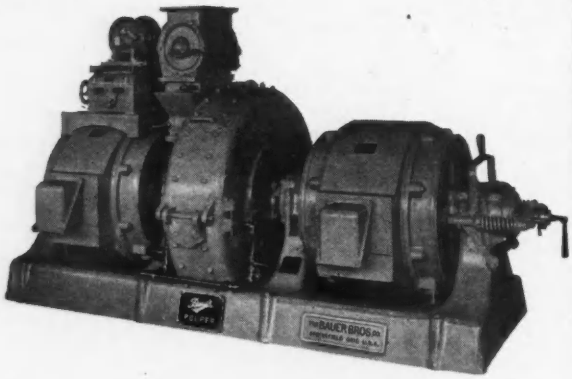
Available to mills on proper priority.

•

Also Bauer Classifier for Laboratory Service.



THE BAUER BROS. CO.
SPRINGFIELD, OHIO

Bauer

Regulates Paper Milk Containers

Paper milk containers have been placed under regulation, the War Production Board has announced.

Limitation order L-239-a states that a manufacturer of paper milk containers may accept for that purpose, during any calendar quarter, only such quantity of paper or paperboard as is permitted him under WPB quota. Unless otherwise specified at a later date, each manufacturer will be permitted 100 per cent of the paper and paperboard he used to make milk containers during the fourth quarter of 1943, WPB said.

A user of paper milk containers may not accept, or have set aside for him, any paper milk containers that wil increase his inventory beyond reasonable 30-day requirements.

During 1943, about 68,000 tons of high grade wood pulp were used in the manufacture of paperboard for milk containers, an increase of more than 20,000 tons over the year before. Acute shortage of wood pulp, in relation to the total military and essential civilian demand for it, makes the new control necessary, WPB officials said.

Any purchaser of paper milk containers who, during the first half of this year, used more than 15,000 of them for a purpose other than the packaging of a milk product, is required by order L-239-a to state in a letter to WPB: The product packed in paper milk containers; number and size of paper milk containers used each month; when he started packaging the product in paper milk containers; what other type of container would be suitable for the purpose.

Letters should be mailed to the WPB Containers Division before July 15, WPB said. This information is required to enable WPB to plan policy with respect to paper milk containers, it was explained.

Names Conditions on Waxed Papers

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 19, 1944—Manufacturers of waxed, oiled and petrolatum treated papers may apply for an individual adjustment in their ceiling prices if two conditions can be met, the Office of Price Administration announced today.

These two conditions are: (1) The manufacturer must be suffering substantial hardship under the existing ceiling which renders him unable to maintain his production at that price, and (2) continuance of the manufacturer's production of the commodity is required to meet a military or essential civilian need, or loss of the manufacturer's production of the commodity will force his customers to resort to higher-priced sources of supply, and no adequate substitute for the commodity is available at a price equal to or lower than the adjusted maximum price requested.

Any relief granted under this authority, which becomes effective July 19, 1944, will be limited to the amount necessary to insure the maintenance of the manufacturer's production of military and essential civilian commodities. In addition, under certain circumstances the price will be raised only to the general level of prices prevailing for alternative sources of supply or an adequate substitute, OPA said.

For the temporary period January 4, 1944 to March 4, 1944, applications for individual adjustments in the ceilings of miscellaneous waxed papers could be filed. This temporary provision is now made permanent and applicable to all types of waxed paper on the recommendation of the Industry Advisory Committee for this commodity.

Supply of Newsprint Is Estimated by WPB

WASHINGTON, D. C., July 17, 1944 —Newspaper publishers in the United States may consume an estimated 781,166 tons of newsprint during the fourth quarter of 1944, the War Production Board's printing and publishing division said last week.

Announcing possible fourth-quarter allocations, WPB told a meeting of the Newspaper Publishers' Industry Advisory Committee that total available newsprint supplies for the last half of 1944 should amount to about 273,000 tons a month.

Allowing 15,000 tons for appeals and 176,000 tons for other uses, total consumption during the last half of the year was estimated at 1,627,702 tons, WPB said.

However, Harold Boeschenstein, acting director of the Forest Products Bureau, told the industry representatives that fourth-quarter newsprint supplies might drop below these estimates because exceptionally low water levels in Canada were hampering floating logs to mills

Conditions permitting, Canada is expected to continue to deliver 200,000 tons of newsprint each month to United States publishers.

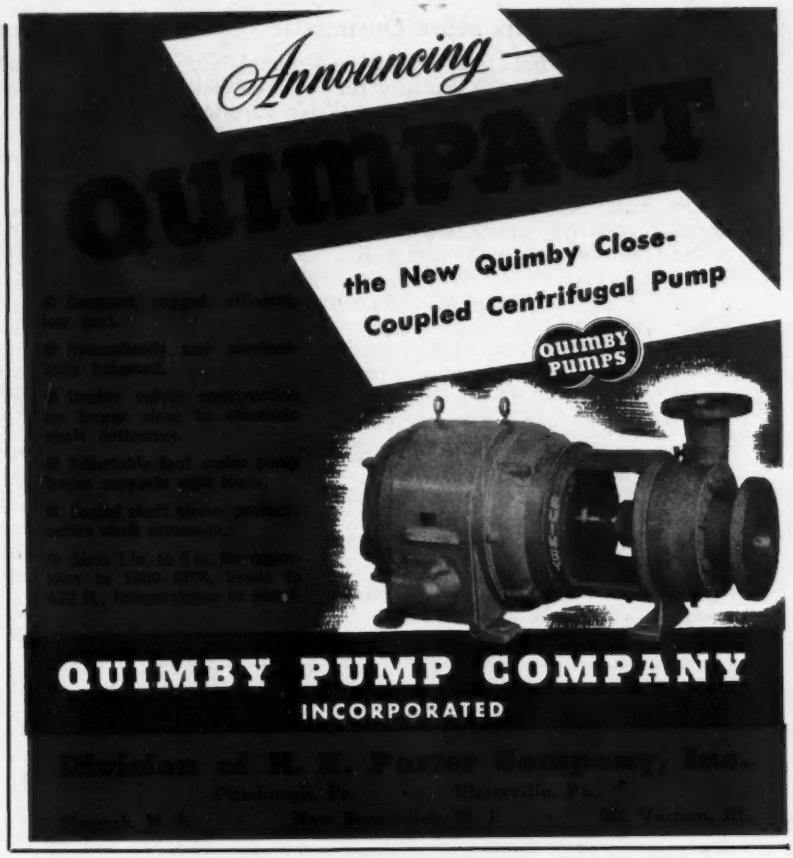
The Newspaper Industry Advisory Committee recommended to WPB last week, agency officials said, that small newspaper publishers falling within the 25-tons a quarter exemption clause and special publications heretofore unlimited in newsprint consumption be limited to the tonnage they used in 1943.

On the basis of first-hand investigation and reports from a special subcommittee, the committee also recommended that WPB eliminate the use in this country of experimental 30-pound newsprint manufactured in Canada.

The recommendation included a specification that any 30-pound newsprint in a publisher inventory be consumed on the same basis as 32-pound newsprint.

The committee further recommended that Arthur R. Treanor, printing and publishing director, appoint a special group to define the field or area of publication under the control of Newsprint Limitational Order L-240, and also to study the amount of newsprint which might be consumed by a new newspaper.

Mr. Boeschenstein told the committee that domestic pulpwood receipts increased more than one-fourth during five months of this year over the corresponding period of 1943, but were 5 per cent below the comparative 1942 figure.



The resignation of Fleming Newbold of *The Washington Evening Star* as a member of the Newspaper Advisory Committee was announced by Mr. Treanor.

Paper in Printing

The first scientific analysis of the use of paper by the commercial printing industry, showing weight of paper for government printing, functional and utility printing, advertising and other types of printing, has been presented to the War Production Board by the Joint Committee on Government Relations of the Commercial Printing Industry.

This analysis, based on a sampling of approximately ten per cent by weight of all paper processed by commercial printers under WPB Order L-241, should set at rest speculation about alleged wasteful uses to which printing paper is put.

The analysis shows that commercial printing today is geared to a wartime economy with over eighty per cent of the paper processed during the first quarter of 1944 going into functional and utility printing used for the management, control, direction and operation of war and civilian business or used by federal, state and municipal government, Army and Navy.

The analysis shows that advertising printing, never as large an item as supposed, has been cut in half since 1941. This large decrease was chiefly in direct mail, off three-fourths from 1941. Miscellaneous advertising, including posters, handbills, etc., was also sharply cut.

The greatest change was in the volume of government printing, including Army and Navy orders, which increased five times between 1941 and 1944 to the approximate level of advertising printing.

The analysis is the result of several months effort of the Joint Committee with the cooperation of twenty-one local printing associations throughout the country.

In order to insure the accuracy of the analysis, forms were checked in advance by WPB officials and statistical experts, and the statistical study was prepared by the Ross Federal Research Corporation.

The percentage increase or decrease in tonnage consumed from 1941 to the end of the first quarter of 1944 is shown in the following table:

Total Tonnage	—18.3%
Total Tonnage Minus X-Quota	—31.0%
Commercial Printing Which Is Not Restricted (Government X-Quota)	+378.5%
Functional and Utility Printing	—21.2%
Printing Done For Non-Profit Organizations	—29.8%
Promotional, Sales, Advertising and Public Relations Printing	—51.0%

Indianapolis More Optimistic

INDIANAPOLIS, Ind., July 18, 1944—Demands for all sorts of paper in this territory for the last week was considerably more than the available supplies. However, there appeared to be a ray of hope expressed particularly by manufacturers. There is a feeling that at least half of the war will be won before many months and that the demand for the armed forces will subside somewhat. Many look for better conditions before the first of the year. If paper were not so expendable, the situation might be eased now. Many of the Indiana defense plants are working shorter hours and in some instances the number of employes has been cut in such plants. There are openings in most of the paper making and converting plants for much of the surplus labor that is cut off from strictly defense plants.

Box and container demand continued heavy in this territory. It has begun to be possible for the factories to supply a trifle more of their products to those without heavy priority ratings. Production is being maintained at as high a level as possible with raw materials and the labor situation such as it is and there is a huge backlog of orders much of which probably will not be filled at all.

The building industry has picked up a trifle with the mid-summer and demand for roofing and building paper is somewhat heavier than a year ago. Tissues continued to be in demand last week as did all grades of kraft. Kraft remains scarce.

Much propaganda continues in this territory toward collections of waste paper. The campaign is resulting more favorably with each week but local warehouses say the effort still is not enough and too much old paper is being wasted. Last week demand for waste paper from the mills was heavy with prices at ceiling levels. All rags appeared also to be in good demand with the accent on the better grades of cotton cuttings. No price changes were noted.

Three-Dimensional Seeing

A completely new and up-to-date booklet on "Three-Dimensional Seeing, The Science of Color and Light For Better Vision In Industry," is now being made available by the Du Pont Company.

The third publication offered since this system of applying color to improve industrial seeing conditions was announced before the Illuminating Engineering Society in 1941, the 20-page booklet contains information derived from color-conditioning installations in more than a thousand plants. Recent results of a continuing Du Pont research program are stated for plant management, maintenance and safety engineers.

Included in the profusely color-illustrated brochure is a section devoted to the "Safety Color Code For Industry," a corollary to "Three-Dimensional Seeing." The Color Code recommends as a standard the use of specific color signals and symbols to denote specific hazards and safety equipment.

Photographs—many of them paired as "before-and-after"—show how contrasting colors increase production, reduce injuries and improve morale in machine shops, textile mills, garment and furniture factories, etc. A number of statements from major companies that have adopted "Three-Dimensional Seeing" are published in the booklet, copies of which may be obtained from the Finishes Division E. I. Du Pont de Nemours & Co., Wilmington 98, Del.

Howard Agencies For Post-war Export

The Howard Paper Company of Urbana, Ohio, has recently completed arrangements for the post-war distribution of its grades in the export field. Howard papers will be sold in world markets by two paper exporting concerns, both of whom have been established for many years.

The National Paper and Type Company, 120 Wall street, New York, will handle Howard qualities in Mexico, the West Indies, as well as in Central and South America, excluding the Republic of Uruguay. This concern maintains branch warehouses in most of the larger cities in Latin America and plans to maintain sufficient stocks with which to supply the needs of the trade.

Parsons & Whittemore, Inc., 10 East 40th street, New York, will handle sales in all other export markets, including the Republic of Uruguay. Parsons & Whittemore, Inc., have been long established in the Orient and other world markets.

Both concerns will also handle the products of the Howard affiliated mills, the Maxwell Paper Company and Aetna Paper Company.

Acquires Iroquois Board Mill

Gibraltar Corrugated Paper Company, Inc., of North Bergen, N. J. has acquired the interests of the A. & P. Corrugated Box Corporation in Iroquois Board Mill, Inc., Thomson, N. Y. The mill is now being operated by a newly formed corporation, Thomson Paper Mills, Inc. The main office is located at Thomson, N. Y.

H. L. Joachim, who was vice-president and general manager of Iroquois Board Mills, Inc., has resigned as director and officer of the A. & P. Corrugated Box Corporation and is devoting all of his time to the managership of Thomson Paper Mills, Inc. of which he is a director and vice-president.

The Thomson mill is running on full schedule making highly essential container board.

New Boiler Meter Publication

Cochrane Corporation, Philadelphia, has just issued a publication (No. 4071) on the new Cochrane Boiler Ratio Meter, announced last month. Introductory pages describe methods of checking combustion efficiency in boiler plants. Then follow the requirements for an ideal boiler meter, and the detailed description of the Cochrane Boiler Ratio Meter which it is claimed completely meet these ideal requirements.

Installation details are also given.

Reinhold-Gould to Handle Wrenn Line

The Wrenn Paper Company of Middletown, Ohio, announces that its complete line of quality blotting papers is now in stock and available from Reinhold-Gould, Inc., 261 Walton avenue, New York 51, N. Y., serving metropolitan New York and its environs.

A. H. Evitts To Be Marchandise Mgr.

BOSTON, Mass., July 17, 1944—Carter Rice & Co., Corporation has promoted Arthur H. Evitts to merchandise manager of wrapping, industrial and twine departments, succeeding John H. Halkyard, who has become assistant general manager of the company.

WYANDOTTE CHEMICALS CORPORATION

one of the world's great producers of basic chemicals

CAUSTIC SODA • CALCIUM CHLORIDE
SODA ASH • CHLORINE • CALCIUM CARBONATE
BICARBONATE OF SODA • HYDROGEN
AROMATIC INTERMEDIATES • DRY ICE

WYANDOTTE CHEMICALS CORPORATION • Michigan Alkali Division
WYANDOTTE, MICHIGAN

PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger, Editor

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

Chicago Professional Paper Group—First Monday of each month except July and August at Chicago, Ill.

SALVAGE MORE PAPER

Large quantities of waste paper have been and are continued to be salvaged but substantially more paper now wasted can be reclaimed. The need for more paper stock to augment the supply of wood pulp is more urgent than ever today, because an increasingly larger proportion of chemical wood pulp is being utilized in the production of nitro cellulose. Experience thus far, has demonstrated that a lagging salvage drive can only be overcome by good newspaper and other publicity that well explains the urgent need for waste paper to manufacture paper board for shipping food and ammunition to our fighting forces; that waste paper is an essential war material to produce the large amount of paper board required in the prosecution of the war.

Waste paper receipts for April, 1944, were 586,000 tons, compared with 512,000 tons for April, 1944, and with 640,000 tons for April, 1942. Mill receipts of paper stock for the first four months of 1944 were 2,770,000 tons, compared with 2,367,000 tons for 1943. Consumption of waste paper for the first four months of 1944 totaled 2,294,000 tons, compared with 2,038,000 tons for 1943. Although the general waste paper collection campaign and the efforts of the paper industry have slightly increased waste paper receipts, a new drive is now on to increase collections. The Periodical Publishers National Committee, a late report from the Department of Commerce states, will aid and supplement the activities of the American Newspapers Publishers Association's "U. S. Victory Waste Paper Committee", the "Conservation Committee of the Waste Paper Consuming Industries", as well as the Salvage Division of the War Production Board and its 17,000 volunteer committees throughout the United States. More than 1,000 advertising salesmen and other magazine men will work in as many communities to promote the waste paper salvage campaign, in a special three-month effort. All national magazines are participating. The primary purpose of this three-month drive, the Department of Commerce explains, is to prevent a drop in waste paper collections during the summer months when the school children will not be available to give as much assistance as when the schools are in session.

April waste paper receipts at mills were about 5% below the month of March, due in part to the longer working days in March. Weekly figures, based on a sample of paper board mills reporting to the National Paperboard Association, indicate that week to week collections are holding up and during May averaged very slightly in excess of weekly averages for previous months. April consumption declined about 6% under March, with the result that inventories were able to register an increase of about 5% over March. The flow of salvageable waste paper through all domestic channels, available in the U. S. only, is estimated to average 233,000 short tons each week. Of this total tonnage, about 88,000 short tons, or 38%, flows through the Nation's households each week, while the remaining tonnage of about 145,000 short tons, or 62%, flows through other organized channels, namely business organizations such as retailers, wholesalers, hotels, banks, office buildings, etc. or industrial and manufacturing establishments of all kinds and public or private organizations such as the Government, hospitals, prisons, old age homes, etc. Of the weekly estimate of 88,000 short tons, flowing through households, about 51,000 short tons are newspapers; 15,000 short tons are magazines, catalogues, pamphlets and books; 12,000 short tons are kraft fiber boxes and cartons, wrapping paper, bags and other brown paper; and 10,000 short tons are "other" types of waste paper, such as "waste basket" paper, cereal boxes, and other types of "gray" fiber boxes and cardboard. Per person, the Department of Commerce estimates, the average weekly flow of salvageable waste paper through households, at 1.39 pounds, of which 0.80 pounds is newspapers; 0.24 pounds magazines, etc.; 0.19 pounds kraft, and 0.16 pounds "other" waste paper.

In commenting on the flow of salvageable waste paper by regions, the Department states that, a regional analysis of the survey does not reveal any widespread variations, except for the Eastern area. The important point is the number of people in each area. Up to June 1, 1944, approximately 37% of the 1944 waste paper goal had been collected. This is the period most favorable to waste paper collection. During this period collections were at least 5% or 400,000 tons below what they should have been to reach the 1944 goal without requiring extra effort. That extra effort is particularly important during the summer period when collections usually decline. Considerable voluntary effort will have to be obtained from the farmer as well as the school children and other volunteer groups who to date have done a fine job. But even so, additional effort will be required to prevent collections from declining sharply with the closing of schools. The waste paper necessary to reach the 1944 goal is available. Every person must help to save and transport waste paper to those places where it can be used. Everyone of us must ask ourselves: "Have we done our part?" We must not only ask ourselves this question, the

Department states, but we must put our thoughts into action.

There is a substantial variation between the quantity of waste paper available from business sources in communities of the same size, the Department points out, because in one community there may be several large industrial plants or other larger business organizations, while in other communities there may be less activity of this type. Furthermore, manufacturing plants or the larger business organizations oftentimes bale their own waste paper, and this may, or may not, pass through local dealers' hands or local salvage channels. Many of the larger business organizations sell their waste paper direct to the consuming mills or through dealers in other large cities, the Department explains.

Forms Glazed Paper Committee

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 19, 1944—Six representative manufacturers of glazed and fancy papers have been appointed to an industry advisory committee, the Office of Price Administration announced today.

All of the members are located in the northeastern area of the United States, where this industry is concentrated.

Initial meeting of the committee will be held in New York City July 19, at OPA regional offices in the Empire State Building, when a chairman will be elected and other organizational matters dealt with.

Glazed and fancy papers at the manufacturing level have ceilings established under Revised Maximum Price Regulation No. 129—Certain Converted Paper Products and Certain Industrial Papers.

The committee will consult with and advise OPA relative to any problems connected with control of prices for their products.

The committee follows: B. G. Bundy, sales manager, Nashua Gummed and Coated Paper Company, Nashua, N. H.; Samuel R. Fry, president, Wyomissing Glazed Paper Company, West Reading, Pa.; John N. Hazen, president and general manager, Hazen Paper Company, Holyoke, Mass.; Leo R. McDevitt, president, Blackstone Glazed Paper Company, Pawtucket, R. I.; Harry B. Conklin, president and general manager, Louis Dejonge and Company, New York; Ralph N. Fowler, president and general manager, Hampden Glazed Paper and Card Company, Holyoke, Mass.

De Laval Get "E" Fourth Time

In recognition of the splendid production record that has been established and maintained since the award of the original Navy "E" to the De Laval Steam Turbine Company, Trenton, N. J., two years ago, a Fourth "E" Star has been conferred upon that company. The company has been advised that in view of the excellence of its production record this fourth renewal has been granted for a period of one year, rather than for the customary six months period.

The products furnished by the De Laval Steam Turbine Company to the U. S. Navy include: marine propulsion gears, steam turbines, centrifugal pumps, centrifugal compressors, worm gear speed reducers, and IMO oil pumps.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1944		Corresponding Weeks—1943	
June 3	88.3	June 5	84.7
June 10	91.5	June 12	88.0
June 17	92.8	June 19	87.0
June 24	92.4	June 26	87.0
July 1 (Revised)	89.5	July 3	77.4
July 8 (Holiday Week)	*53.8*	July 10	66.2

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1943	87.2	88.9	89.5	88.7	91.4	84.8	84.3
1944	89.6	89.6	90.1	89.5	90.9	*92.6*	...

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1943	91.0	88.3	89.6	89.6	82.0	87.8

COMPARATIVE YEARLY SUMMARIES

	1937	1938	1939	1940	1941	1942	1943	1944
Year to Date	88.1	67.1	78.6	86.6	92.8	96.8	87.5	*89.2*
Year Average	79.8	71.5	83.4	85.6	97.4	90.4	87.8	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1938	56	63	63	60	60	59	59	69	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	83	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	88	94	94	96	94	89	96	94	94	93	87	93
1944	90	96	95	96	96	96	..	..	..	..	..	..	..

Week ending June 3, 1944—93
Week ending June 10, 1944—96
Week ending June 17, 1944—95
Week ending June 24, 1944—96
Week ending July 1, 1944—95
Week ending July 8, 1944—*60*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

To Launch Publicity Program

At a meeting of the Specialty Flexible Container Manufacturers Institute held last week in New York at the Hotel Biltmore, members of the organization took initial steps to adopt a long-term publicity program to reach manufacturers and consumers.

This industry, with a gross business that approximates one hundred million dollars, has had a phenomenal growth. Its products range from packages for needles to liners for freight cars, and involve the use of over seventeen distinct types of papers and films.

E. M. Rickel, of Union Bag and Paper Corporation, and chairman of the industry publicity committee, presented an extensive program. It will include the preparation of informative literature that will assist manufacturers in solving wartime packaging problems. There will also be a series of institutional advertisements which will give specific instances of how flexible containers have met emergency demands.

Gordon H. Friend, of Thomas M. Royal & Co., president of the Institute, introduced Dr. Charles F. Roos, well-known economic consultant to trade associations and busines organizations. The subject of his address was "The Outlook of General Business." Dr. Roos presented an informative talk on both current and post-war problems.

The Specialty Flexible Container Manufacturers Institute was organized in August, 1943. Approximately 30% of the Industry's output is going directly into the War effort and the balance into essential civilian uses.

The Institute maintains its office at 369 Lexington avenue, New York 17, N. Y. Mr. J. A. C. Kavanagh is the Director of the Institute, and D. F. MacPhail, formerly assistant secretary-treasurer of the American Paper and Pulp Association, is the assistant director.

Give Hooker's Technical Staff a Part in Your Post-War Plans

It doesn't take a crystal gazer to predict that new things are developing in the paper making industry, waiting only for war's end to bring them into being. Whatever your plans, you will find Hooker a source of helpful information that will lighten your burden and will aid you in turning ideas into practical results.

Hooker research helps paper makers

A working partnership with the paper mills that extends back for more than thirty-five years and which includes both independent and collaborating research in better paper making through chemicals, has given Hooker a fund of information that can be helpful to you now and in the future.

Hooker pulp manufacture bulletins

Some of the information resulting from this research is available in printed form as Bulletins on various phases of pulp manufacture. Other information is in the form of laboratory reports and in the experience and knowledge of our technical staff. All are available to you for the asking.

Hooker upholds quality and service

Although your supplies of many chemicals are now restricted, Hooker endeavors to take care of your needs with the same considerate service and same high quality materials that have won the confidence of your buyers for many years.

When government restrictions are finally lifted, Hooker will again be ready to furnish you with the chemicals you may need to do a better job.

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ELECTROCHEMICAL COMPANY
6 Union Street
NIAGARA FALLS, NEW YORK

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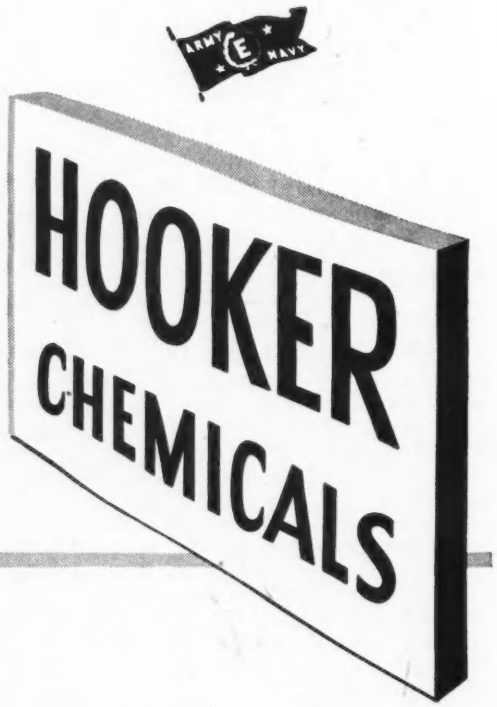
TACOMA, WASH.



Chemicals for the Paper Industry

LIQUID CHLORINE **CAUSTIC SODA**
BLEACHING POWDER **SODIUM SULFIDE**

Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY
122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

Paper Machine Drying Rate*

TAPPI Tentative Standard E 203 p-44

The purpose of this recommended practice is to provide a uniform procedure for calculating drying rates in different mills. It is considered desirable to have the definition of drying rate and its calculation as simple as possible. It is recognized that different effectiveness is obtained on the felt drier surface from that on the paper drier surface, but no simple factor is available for converting them to the same basis and it is believed that the definition and calculations recommended accomplish the desired purpose.

Definition of Drying Rate

Drying rate as applied to drying on the paper machine shall be defined as the pounds of paper dried (R_p) or pounds of water evaporated (R_w) per hour per square foot of total paper and felt drying surface covered by the width of the sheet.

Method of Calculating Drying Rate

DRYING SURFACE

If S = total drying surface in square feet,
W = width in inches at reel,
N_p = number of paper driers,
D_p = diameter of paper driers in inches,
N_f = number of felt driers,
and D_f = diameter of felt driers in inches;
then S/W = total drying surface in square feet per inch of width,

and $$S/W = 0.0218\ (N_p D_p + N_f D_f). \qquad (1)$$

Note: The factor 0.0218 is $\pi/144$.

POUNDS OF PAPER DRIED

If R_p = pounds of paper dried per hour per square foot of drying surface,
S_m = speed of machine in feet per minute,
B = standard basis ream weight of sheet,
and K = a constant depending on the ream size;

$$\text{then } R_p = \frac{S_m \times B}{S/W \times K}. \qquad (2)$$

The value of K for the most common ream sizes is shown in Table I.

POUNDS OF WATER EVAPORATED

If M = pounds of water evaporated per pound of paper as dried,
L = percentage dryness of sheet leaving the last drier (the larger number),

Table I.—Value of K for Different Ream Sizes.

	Size of Ream	Constant, K
Blotting	19 x 24—500	317
Board	1000 square feet	200
Board, bristol, and tag	22½ x 28½—500	445
Board, card	22 x 28—500	428
Book	25 x 38—500	660
Cover	20 x 26—500	361
News	24 x 36—500	600
TAPPI standard size	25 x 40—500	694
Tissue	20 x 30—480	400
Wrapping	24 x 36—480	576
Writing (and printing)	17 x 22—500	260

Note: The value of K for any ream size not given above may be obtained by dividing the total number of square inches in the ream by 720. For example, for map paper 17 X 22 — 480:

$$K = \frac{17 \times 22 \times 480}{720} = 249$$

and E = percentage dryness of sheet entering on the first drier (the smaller number);

$$\text{then } M = \frac{L}{E} - 1. \qquad (3)$$

The drying rate, R_w, expressed in pounds of water evaporated per square foot of drying surface, is:

$$R_w = R_p \times M. \qquad (4)$$

* This recommended practice has been approved as a tentative standard by the Heat and Power Committee. Criticisms are earnestly requested and should be sent to R. G. Macdonald, Secretary, Technical Association of the Pulp and Paper Industry, 122 E. 42nd St., New York, N. Y. Reprints of this standard may be obtained from the Secretary at 25 cents each.

TAPPI Notes

John P. Flanigan formerly of the Oswego Shade Cloth Company is now chemist for the Endurette Corporation of America, Cliffwood, N. J.

Percy R. Sandwell, formerly with the Australian Newsprint Mills, Tasmania is now development engineer for the Ontario Paper Company, Ltd., Thorold, Ont.

Frank T. Peterson of the General Electric Company is on a leave of absence and is in the personnel section of the Naval Ordnance Laboratory, Navy Yard, Washington, D. C.

The Norton Company of Worcester, Mass., who has for the past 59 years engaged in the manufacture of abrasives, grinding wheels and other abrasive products, pulpstones, refractories, and grinding and lapping machinery is now a sustaining member of the Technical Association of the Pulp and Paper Industry. The Norton pulpstone was first introduced in 1921. Its acceptance in the industry is indicated by the extensive use of this product in the pulp and paper mills of the United States and Canada. The company will be represented in TAPPI by William R. Moore, vice president, who is in charge of the Pulpstone Division.

It is represented in the field by Bernard Bornstein and James H. Perry.

Resinous Materials in the Processing of Paper*

By John Y. Kao[1], Leon Gold[2], Ashworth Stull[3], Robert Worden, and William Abramowitz

Abstract

A broad summary is presented of the uses of resins in the converting of paper. War packaging has been a most important impetus in the utilization of a wide variety of resins for the unusual and highly critical properties required. These properties and the resins used are outlined in detail.

The adhesives used in paper converting are also considered.

Some papers are impregnated for special applications and an evaluation is given of some of the synthetic resins and rubbers employed.

With paper as a base or matrix, synthetic resins and allied substances are being applied to yield combinations of protective, decorative, and dielectric properties which can be varied almost at will. This report will outline the tremendous activity in the field of processed papers in the following order: first, the military and important civilian uses; secondly, properties to be imparted; thirdly, adhesives for paper; and finally, principal methods of treating, coating, lamination, and impregnation. Some original work will be presented on the use of synthetics in impregnation.

As can be seen in Fig. 1, the increase in the tonnage of processed papers at the sacrifice of newsprint is tremendous. The over-all production of paper has remained relatively constant.

[1]Director, Latex Labs., American Resinous Chemicals Corp., Peabody, Mass.
[2]Director of Research, Milprint Corp.
[3]Chief Chemist, American Resinous Chemical Corp., Peabody, Mass.

*Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 14-17, 1944.

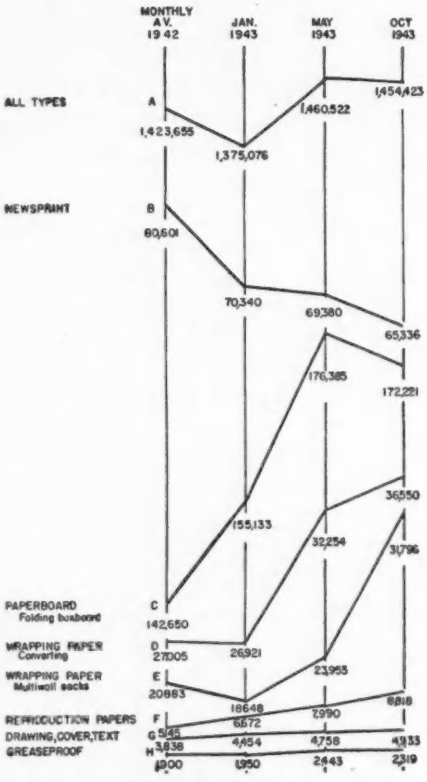


FIG. 1
Production of Papers in Tons.

Military Requirements

The military requirements involving the use of paper and the manner in which these requirements have been met have not been as spectacular to the public imagination as the conquest of synthetic rubber, high octane gas, or the use of block busters, but in its multitudinous applications and in its ingenuity, the paper industry may be proud of its contribution. A classic legend of packaging is the story told in the first stages of the South Pacific war of the barge loads of canned provisions that were dumped overboard during landing. When the packages were finally gathered up and the hungry troops sat down to eat, it was a toss-up whether the can being opened contained stewed fruit or lubricating oil. The labels had all washed off.

The enormity of the military problem is, of course, due to the global nature of the war. Food, machinery, chemicals, and equipment must be packaged so that they will be as well protected in the wet jungles of Rabaul as in the deserts of Africa or the cold of the Aleutians, for it is impossible to forecast where the next depots will be. Boxes and cartons become strewn over open beaches or stored in marshes. The methods of transportation en route are numerous, and materials may be handled several dozen times. Safe packaging would be difficult under ordinary conditions. Under war conditions, the problems had to be solved with a minimum of critical materials.

Processed Papers

Army and Navy specifications (U.S.A.—No. 100 14A and AXS 840 Rev. I) recognize three methods of packaging classified as I, IA, and II; see Table I.

Method I—is concerned principally with greaseproof coated papers.

Method IA—Waxed paper.

Method II—This will be further discussed under ordnance wrapping.

Uses

An elaboration of Table II showing the principal military uses of paper follows:

Ordnance wrapping—This is one of the outstanding packaging achievements of the war. Machine parts, motors, guns, and even tanks are wrapped in moisture vapor resistant combinations of paper, resins, metal, and plastic films, eliminating the necessity of

TABLE I—ARMY AND NAVY SPECIFICATIONS
(USA NO. 100-14A AXS-840 Rev. I).

Method I (Unsealed Wrapping)	Greased metal parts in acid free greaseproof paper. Wrapper not sealed airtight to permit entrapped moisture to evaporate. Function of wrapping mechanical protection against impact and prevention flow-off of preservative. No protection against corrosion.
Method IA (Sealed Wrapping)	Greaseproof, moisture vapor, conforming sealed wrap. Machine part is greased. Mechanical protection, corrosion, resistance uses Grade C paper—sticky. Moldable amorphous waxed paper or Cellophane which can be wound intimately around object. Entire object dipped in wax sealer. Heat sealing greaseproof bags as moistureproof Cellophane also applicable.
Method II (Dehydration Packing)	Avoids greasing. Part placed in moisture vaporproof barrier with dehydrating agents as silica gel. Pliofilm, Saran, wax laminated M. Cellophane, lead foil asphalt laminated-kraft laminated cloth, heatsealing vinyl film on foil. Triple ply asphalt. Crepe sealed with rubber asphalt adhesive. Humidity indicator and transparent window.

greasing the parts. This saves subsequent degreasing and reassembling. Complete operating units can be delivered to a beachhead or operating area where the immediate utility of materials is the important consideration.

TABLE II.—MILITARY USES OF PAPER

Type of Product	Details of Manufacture
1. Ordnance wrap	1. Coatings, laminants, waxes, special films
Guns	
Tanks	
Tools	
Machinery parts	
Radio equipment	
Field hospitals and laboratories	
2. Waterproof liners	2. Mainly asphalt laminated, urea- melamine HCHO wet strength papers
3. Food and medical packaging	
Individual subsistence rations	3. As ration K—laminated bags in fiber carton subsequently wax coated
Dehydrated food	Soups; wax - laminated - heat - sealing - glassine or Cellophane may be put into outer bag of kraft-asphalt-lead foil-Cellophane. Bulk uses; box-in-bag (corrugated fiber box placed into asphalt-laminated kraft bags)
Frozen foods	Frozen foods in low humidity cold storage lose most of their moisture. Flavor changes occur and rancidity sets in unless moisture vapor resistant wrappings are used. Low temperture flexibility is needed. Suitable materials are rubber lined bags, wax laminated Cellophane coated with heat sealing vinyls.
Miscellaneous foods	Beans, flour, sugar; Cloth-paper combinations. Foodstuffs in cloth bag placed in five ply paper shipping sack with wax dipped closures. Waterproofed paper laminated to fabric bags also used.
Medicines, bandages, first aid kits	Heat sealing moisture vaporproof pouches for combat items as sulfa drugs, hospital sheeting.
4. Air Force problems	4. Reduction of cubage, closures and tapes.
5. Paper or fiber board cartons, shell cases, gas mask canisters, cartridge clips, emergency ration, sea rescue gear	5. Coated paper used in winding the container eliminates need for coating insides.
6. Plywood	6. Paper impregnated with phenolics, dried, and sold in rolls. Used as adhesive in boarding plywood.
7. V-boxes	7. For quite some time in 1942, it was thought that only wooden boxes could withstand the conditions imposed. Wet strength paperboard four or five plies laminated with waterproof adhesive.
8. Chemical cartons and bags	8. Various laminants and coatings.
Tetrol	
Liquids	
Chemicals	
Smokeless powder	
9. Molded packagings	9. Thermosetting resins incorporated in beaten or wet sheet.
Ammunition boxes	
Wing tip ribs	
Gunner's seats	
Bomb rings	
Meal kits	
Plates	
Gaskets	
Grenade holders	
10. Specialty papers	
Gas capes	
Sand bags	
Aviators vests	
Jettison tanks	
Paper parachutes	
Camouflage nets	
Litters covers	
Blackout papers	
Tags	

TABLE III.—CIVILIAN USES OF PROCESSED PAPERS

Architectural Panels
Artificial flowers
Artificial leathers—luggage
Asphalt laminated crepe—bulk packing meat, trees, and shrubs
Book covers
Bread wrappers—butcher papers
Building papers
Cable papers—impregnated or coated
Campaign buttons
Can and jar closures
Cigarette packages
Cigarette paper
Coated tape for teletype machines
Cosmetics
Decalcomania
Food and candy wrappers
Greeting cards
Labels
Laminated paper to cloth for drum heads
License plates
Liners for bottles and jars
Varnished paper
Resin coatings
Manila stock—coated
Milk bottle closures
Packaging
Asphalts
Baked beans
Cosmetics
Drugs
Lipstick
Motor oils
Printing inks
Sausage cases and bands
Shortening
Silverwear—antitarnish cloth lined
Spices
Tobacco
Yeast cakes
Photo mounts
Playing cards
Printing plates
Self sealing envelopes
Shelf paper—oil, food, water resistant
Shoe soles and innersoles
Soap
Sound records
Stencil sheets
Surgical sheets—hospital covers
Table tops—water and alcohol proof
Tapes
Bookbinders
Corrugators
Electrical
Heat seal
Luminescent
Masking
Moistening
Pressure sensitive
Solvent
Veneer
Wall paper
Waterproof sandpaper
Window shades—flameproof
Woven automobile seat covers

Waterproof liners. This problem is still not entirely solved. Chemical warfare service demands are particularly stringent. In the form of paper sheets the properties seem satisfactory, but in actual service in lined boxes, they are not yet quite right.

Medicines. Millions of packages had to be made available quickly. Kraft - asphalt - foil - cellophane — topped with heat seal coatings are widely used.

V Boxes. An approximation of the demand may be seen from the fact that the Navy alone expects 75,000,000 for export this year.

Tapes. A great deal is heard about red tape these days, not as much about the pressure sensitive, heat sealing, and other tapes that are more important in war packaging problems. There are tapes that are waterproof, airproof, greaseproof, nonshrinkable, resistant to sea air, salt spray, war gases, solvents, oils, greases, and chemicals; tapes that reinforce, laminate, identify, mask, mend, decorate, splice. Many will withstand impact. All exposed parts of a plane are sealed with tapes. Tapes prevent ice from forming in gun barrels and sand from clogging tanks. Artillery ammunition containers sealed with colored tapes assist gunners in loading the right shells; back in the paper mill, tapes are used to splice rolls.

Some of the civilian uses of processed papers are listed in Table III, the major large scale uses being artificial leather, packaging, shoe soles, and wall paper.

TABLE IV.—PROPERTIES TO BE IMPARTED TO PAPER

A. Resistance to:
Water, moisture vapor
Grease and oils
Acids and alkalies
Solvents and chemicals
Gases
Scuffing, abrasion
Insects, mold, annd micro-organisms
B. Tear and wet strength
C. Flexibility
D. Heat seal
E. Pressure sensitive adhesion
F. Protection of printed matter
G. Heat and pressure convertability in molding processes
H. Electrical insulation
I. Decorative

Properties

Table IV shows the properties required by the paper converter, and an elaboration follows:

A—1. *Moisture vapor resistance*—All materials in thin films permit the passage of water in vapor form. One way of distinguishing between waterproofness and moisture vapor resistance is to consider that liquid water enters through interstices between the cellulose fibers whereas moisture vapor may be transmitted along the fibers themselves. Asphalt impregnated kraft is noted for waterproofness, but is inadequate in moisture vapor resistance for even 4 months in the tropics. It is also too soft in warm weather and too brittle in cold. Metals, of course, corrode readily in the presence of moisture. Foods and chemicals are liable to speedy destruction, dehydrated foods being particularly sensitive. Wax, asphalt, and combinations impart the greatest degree of resistance. These may be incorporated in emulsion form into the beater and the paper later coated. In combat zones where there is

TABLE V.—MATERIALS AVAILABLE TO PAPER PROCESSOR

Proteins and Starches		*Resins*	*Films*	*Rubbers*
Casein	Acrylic	Silicon	Asbestos	Buna N
Gelatin	Alkyd	Urea-HCHO	Aluminum Foil	Buna S
Glue	Allyl	Vinyl	Casein	Butyl
Soya protein	Chlorinated waxes	Acetate	Cellophane	Neoprene
Starch	Ester gums	Alcohol	Acetate	Polyethylene
Zein	Fufural	Chloride	Viscose	Reclaim
Miscellaneous	Lignin	Copolymer	Glassine	Rubber
Animal waxes	Maleic	Cellulose	Koroseal	Thiokol
Asphalt	Melamine	Nitrate	Lead Foil	
Mineral waxes	HCHO	Esters	Parchment	
Vegetable waxes	Monomers	Ethers	Parafilm	
	Natural gums	Drying Oils and Varnishes	Pliofilm	
	Phenolic	Nylon	Pliolite	
	Polyamides		Saran	
	Arlac		Silver Foil	
	Norelac		Styrene	
	Polystyrene		Tin Foil	
	Rosin			
	Shellac			

danger of fire from torpedoes or incendiaries, it is often necessary to turn a water hose on packages, and they may be left soaking for many days. This illustrates the need for resistance to moisture vapor and water.

2. *Grease resistance*—This is obtained by coating, laminating, or impregnating with water soluble materials such as glue, gelatin, starch, casein, polyvinyl alcohol, alginates, or methyl cellulose. Resinous substances as zein, polyamides, vinyl copolymers, cellulose esters and ethers combine grease resistance with an increased measure of water resistance.

3. *Acids and Alkalies*—High degrees of resistance are obtained with vinyl chloride, the acrylics, polystyrene, ethyl cellulose, thermosetting phenolics, and urea formaldehydes.

4. *Solvents and Chemicals*—Polyvinyl alcohol, vinyl chloride, and thermosetting resins are resistant to a wide variety of solvents and chemicals.

5. *Scuffing and Abrasion*—The hard, tough plastics such as vinyl chloride or copolymers, baking varnish, enamel, etc., are used for this purpose.

6. *Resistance to Gases*—Cellophane laminated to kraft has shown good promise against war gases. Certain phenomena require further explanation. Why does carbon dioxide, a comparatively heavy gas, pass through rubber hydrochloride four times as fast as air? Further polyvinyl alcohol substantially excludes oxygen and carbon dioxide but allows water vapor to pass quite freely. One explanation may be that the water dissolves in the polyvinyl alcohol and evaporates through the other side. A study of these phenomena will be useful for lamination and coating problems. Gasproofing is one of the recent developments and not very much information is available.

7. *Insects*—Materials toxic to insects and microorganisms, such as halogenated waxes, copper salts, zinc borate, etc., are incorporated in the resin compositions. One clever proposal which offers promise is the incorporation of a ply of sandpaper.

B. *Tear Strength and Wet Strength*—Tear strength is obtained either by lamination or impregnation with emulsions such as reclaim, vinyl, acrylic, alkyd, and the natural or synthetic rubbers. Wet strength papers from urea, melamine or phenol formaldehyde resins incorporated in the beater have been described elsewhere. In tub sizing these resins may be used with other film formers such as methyl cellulose.

C. *Flexibility*—Thermoplastic resins or rubbery materials are either incorporated in the beater or impregnated into the sheet stock.

D. *Heat Seal*—This is rapidly replacing the conventional method of glueing in the formation of bags and packages. Its advantages include strength of glued bond, packaging appearance and packaging speed. Thermoplastic resins such as vinyl acetate, ethyl cellulose, polyamide, and polybutenes, because of their inherent properties and film strengths, are used for this purpose. One problem here is to determine where the heat seal coating is; tinted seals are now available. Electronic heat sealing is one of the latest developments in this field.

E. *Pressure Sensitivity* — Nonblocking papers capable of combining only with their own treated surfaces are required for laundry wraps, tapes, and miscellaneous packaging problems. For this purpose, the natural and synthetic rubbers, vinyl and acrylic resins are used.

F. *Protection of Printed Matter*—Synthetic coatings are applied over printed surfaces for protection against abrasion and marring for lables, covers for

TABLE VI.—RESISTANCE OF VARIOUS FILMS

	Acids	Alkalies	Alcohol	Gasoline	Oils and Greases	Electrical	Flammability	Heat Seal	Water Vapor Perm.
Acrylic Resins	G	G	P	F	F	G	Low	E	F
Casein	P	P	F	E	E	P	Very Low	None	P
Cellulose Acetate	F P	P	P	P	G	F	None	F	P
Cellulose Ethyl	F P	E	P	P	F	G	Low	G	P
Cellulose Methyl	F	F	P	E	E	F	High	None	V P
Chlorinated Waxes	E	E	Vary with type		P	E	None	G when combined with film forming thermoplastic resin	G
Diphenyls, etc.	(Inorganic)								
Nitrocellulose	F P	P	P	G	F	F	High	F	G
Polyamides—Norelac—Arlac	P	F	P	P	E	F	F	E	F
Polybutene	E	E	E	P	E	E	Low	E	G
Polystyrenes	E	E	E	E	E	E	Low	P	P
Polyvinyl Acetate	G	G	P	G	G	F	Low	E	P
Polyvinyl Alcohol	P	P	G	E	E	G	Low	None	P
Polyvinyl Butyral	P	F	P	G	E	G	Low	E	P
Polyvinyl Chloride	E	E	E	E	E	E	None	E	G
Polyvinylidene Chloride	E	E	E	E	E	E	Low	Special process	E
Rubber Chlorinated	E	E	G	P	P	G	Low	G	E
Rubber Cyclized	E	E	E	P	P	G	None	E	E
Urea Formaldehyde	F	F	F	E	E	G	Very Low	None	P
Vinyl Copolymer	E	E	E	E	E	E	None	E	F

E—Excellent. G—Good. F—Fair. P—Poor.

* Resistance of finished coating to chemical agents is most often dependent upon modifying agents used in formulation.

laboratory and cook books, instruction manuals, and the like.

G. *Heat-Pressure Convertibility* — Thermoplastic resins of high melting point or thermosetting ones such as urea or phenol formaldehyde are either incorporated in the beater or impregnated into the sheet. Upon molding and curing under heat and pressure, rigid products are obtained for boxes, dishes, ammunition kits, etc.

H. *Electrical Insulation*—Paper may be impregnated with dielectric materials such as chlorinated oils, or coated with styrene, acrylic or ethyl cellulose.

I. *Decorative Purposes*—For beauty and protection of gift wrappings, playing cards, table tops. Almost any available film-forming material is used.

Another important use is flameproofing where inorganic salts with and without resin binders are utilized.

Especially important on the list of materials available to the paper processor are the monomers (Table V); these are something to watch for future developments. Extremely interesting effects have been obtained by coating or saturating fibrous materials with monomeric resins or their dispersions as vinyl acetate and polymerizing *in situ*.

TABLE VII.—MOISTURE VAPOR TRANSMISSION RATES

Film	G./100 Sq. In./24 Hr.
Aluminum foil laminated to glassine	.03 to .10
Waxed glassine	.2 to .6
Saran (.002 in.)	.10
Number 140 PID laminated pliofilm	.31
450 moistureproof cellophane	.5 to 1.0
Paper coated with vinyl copolymer	2.5
Rubber hydrochloride PD-140	.3

Table VI shows the resistance of the resins to various chemical agents; Table VII shows some moisture vapor transmission rates, all of these being in general suitable for method II ordnance wrapping; Table VIII presents some data on gas permeability; and Table IX shows where the resins are most widely used.

Adhesives

The subject of adhesives, although involving resins to a great extent, is so vast in itself that it seemed best to limit discussions to a few high spots. The principal uses are in the form of lacquers and resin solutions, rubber cements, hot melts, emulsion and latices, and as dry films (Table X).

The war has accelerated the manufacture of adhesives from an art to a science; the chemical and physical natures of the substances to be joined are now being considered. Some of the factors involved include chemical action of the adhesive components on surfaces, wetability, adhesive and cohesive forces, porosity, machinery, speed of application, and perhaps most important, the factors to which the laminates are to be subjected—water, solvents, oils, chemicals, and stresses. In mechanized operations, the application of excess adhesive is frequently as bad as the application of too little. In some cases, a diluted solution of adhesive is used as a first coat, allowed to dry and a second coat of adhesive applied. In laminating with metal foils a trace of acid or alkali in the adhesive frequently gives better grasp. If one of the sheeting materials shows a tendency to get brittle, a properly selected laminating agent can insure flexibility. Adhesives can also be formulated to inhibit mold and insect infestation. One laminator has turned out a sheet which comes very close to being a one-way glass; with the light at the observer's back it has the characteristics of a mirror and when held up to the light, it surprisingly enough becomes a transparent sheeting. Laminations have been extended to carton stock; for example, clay coated box board is being laminated to cellophane, glassine, and coated papers. No package being stronger than its seal, the technique and machinery of adhesive application frequently require modified operations and a willingness to experiment. To show the variations required, adhesive companies have as many as 200 formulations for the paper industry alone.

Methods of Application

Synthetic resins, rubbers, and waxes may be applied by any of three methods, i.e., solutions, emulsions, and hot melts and calendering (see Table XI). Each has its advantages which are dependent upon the properties of the resin, the type of machinery available, and the cost.

In applying solutions it is generally desired to have a fairly high solid content with low viscosity. Some surfaces need the attacking influence of solvents to promote adhesion. Solution application includes spirit varnishes, generally natural gums dissolved in alcoholic solutions, overprint varnishes of the drying oil or baking type, lacquers, and resin solution. The use of emulsions eliminates the need for solvents, provides better adhesion for certain surfaces, controls penetration or lack of it, and permits greater concentration of solids. Using hot melts eliminates solvents and drying problems and increases production rate.

Much work has been done with emulsions in the impregnation of fibrous materials.

TABLE VIII.—GAS PERMEABILITY

	Air, cc./100 sq. in. 24 hr.	Carbon Dioxide, cc./100 sq. in. 2/24 hr.	Moisture Vapor, gm./100 sq. in. 2/24 hr.
Polyvinyl alcohol, 0.002 to 0.003 in.	0	0	10 (minimum)
Rubber hydrochloride, PO-140	6	25	0.3
Polyvinylidene chloride, 100 gauge	0	0	0.17
Glassine, 0.001 in., single ply	5	..	....
Glassine, two-ply laminated	0	..	....
Polyvinyl alcohol coated on paper			
1 Coat	Rapid leakage	..	....
2 Coats	Approx. 1000	..	....
3 Coats	0	..	....
25 pound Glassine	1500	1300	....
Same glassine with pliolite both sides, 1.5 lb./ream	8	300	....
Cellulose acetate	10	1300	....

TABLE IX.—APPLICATION OF VARIOUS RESINS

Resin	Applications
Acrylic Resins	Heat sealing: Water-, acid-, alkali-resistant paper coatings. Wax hot melts.
Alkyds	Principally used with cellulose derivatives. Per se in high gloss overprint varnishes. Emulsions in impregnation for artificial leather.
Alphalts	Moisture-proof laminants for kraft liners. With rubber as moistureproof adhesive.
Casein	Paper coating for lithograph work, magazine and other printing; adhesives: greaseproof coatings for containers and food packaging papers; high gloss lacquers.
Cellulose Acetate	Oils, grease-resistant packaging papers; tough with low inflammability; no good cheap solvents available.
Cellulose Ethyl	Laminating agent for paper, metal foil and cellophane for general food packaging; paper label coatings; high gloss decorative coatings; alkali-resistant coatings for soap wrappers; heat sealing bags and packagings. Wax incorporated for moisture vapor resistance.
Cellulose Methyl	Adhesives and sizings for paper; surface size under lacquers and waxes, for label and glass ink printing papers; grease-proof coatings.
Cellulose Nitrate	Widely used, very cheap; when properly formulated gives good grease-resistance, water-resistance, and heat sealing cellophane coatings. General for boxboard labels, advertisement, wrappings, menus, etc. Disadvantage—inflammability.
Chlorinated Waxes, Diphenyls, etc.	Moistureproof protective coatings; fireproofing agent; plasticizers; insulating and dielectric paper.
Coumarone-Indene resin	Principally as modifying agents.
Natural Gums (Shellac Rosin) and Derivatives	Lacquer coatings, adhesive and laminating agents added to waxes to improve adhesion.

Polyamides Arlac Norelac	Heat sealing, grease-resistant coatings for glassine, foil, cellophane; laminating agents for glassine to glassine, paper to foil, etc. Good low temp. flexibility.
Polystyrene	Waterproofing agents; chemically resistant paper coatings. Brittleness its major handicap.
Polyvinyl Acetate	Best use as adhesive, pressure and heat seal coatings; laminating adhesives; greaseproof coatings for packaging of dehydrated food.
Polyvinyl Alcohol	Grease-resistant papers and fiber containers for oils and greases; coating for protecting oil paints in fiber containers; extensive use by C.W.S. for mustard gas resistance; size for fine papers. With glassine confers XL transparency, high burst and tear.
Polyvinyl Butyral	Heat sealing coatings and adhesives; pressure sensitive tapes; poor moisture-resistance and cost limit use.
Polyvinyl Chloride	Chemical-solvent-resistant coatings; waterproof coatings. Poor solubility. Applied by calender.
Polyvinylidene Chloride	Moisture vapor- and chemical-resistance films for packaging guns and metal parts for export shipment; its use in coatings being investigated.
Polybutene	Heat sealing, moisture-resistant paper coatings and laminating adhesives. Used in wax hot melts to increase bond strength.
Polyvinyl Copolymer	High gloss abrasion-chemical-resistant coatings for labels, cap liners, paper packages, hood closures for milk bottles, linings for beverage and fruit juice containers; heat seal coating for foil; greaseproof coating for packaging of dehydrated foods. Paraffin wax in small quantities to incrase M.V.R. New application is solvent suspension.
Rubber Chlorinated	Miscellaneous protective coatings; moistureproof coatings and adhesives; not good for heat seal. One of the few resins capable of laminating pliofilm to foil. Used for coated tagstock, and plant and vegetable markers because of mold-inhibiting properties.
Rubber Cyclized	Produced by treating rubber with SnCl. High solids solutions of low viscosity. Clear glossy films good adhesion cellophane, glassine, foil, acetate, XL M.V.R., chem. adhesives and laminating agents, coatings for labels and outer wraps for food; wax melts used on cheese wraps, milk, fruit juice, bread wraps, etc.; heat sealing paper bags for packaging chips, etc.
Urea Formaldehydes Melamine	Solvent- and chemical-resistant papers, such as cap liners, manufacture of wet-strength papers; face tissues, shipping tags, boxes, containers, bags, maps, and blueprint papers.
Waxes	Paraffin derived from distillates M.P. 100° to 150° F.; amorphous from residual stock M.P. 140° to 200° F.; more flexible, better tack and adhesive properties; wax best M.V.P.; waxed papers, food rations, internal protective coating for collapsible paper tubes. Also lead foil lined.
Zein	Grease and scuff resistance, base under wax; heat sealing and laminating hot melt adhesives.

Impregnation

The comparative evaluation of latex, dispersions of reclaim rubber, acrylic, vinyl, alkyd resins, and their mixtures for paper saturating and sizing was presented before TAPPI by Nazzaro in 1942. Paper saturated with these materials is used extensively in the manufacture of artificial leather for luggage, belts, book covers, etc., in the preparation of shoe stock as solings or sock linings, and for war packaging, camouflage materials, and metal replacements. Briefly, this involves the impregnation of paper in an emulsion bath containing 10 to 15% solids to deposit within the paper 15 to 30% solids, and subsequently drying, calendering, or pressing. This work has been continued with other resins and the synthetic rubbers, and some new data follow:

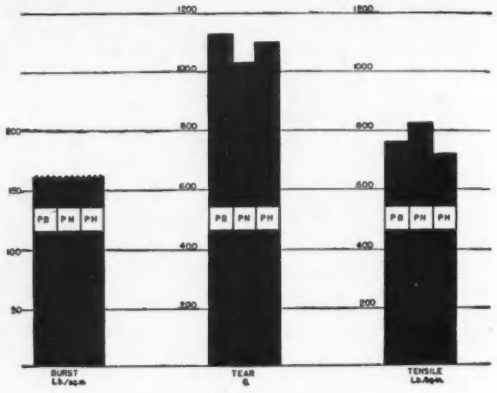


FIG. 3

Impregnation of Paper.
PB—Buna latex processed; PN—Neoprene latex processed; PH—Hycar latex processed.

In preparing the impregnated stock, the resinous dispersions or emulsions were sensitized in order to insure uniform adhesion of the elastomeric bodies throughout the fibers. Nazzaro in his papers pointed out the interesting phenomenon of different resins showing varying degrees of migration toward the surface of the paper. Sensitizing the dispersions assists in preventing resin precipitation on the surface and helps to insure the actual deposition of the resins in the sheet under the influence of the drying conditions. This sensitization was accomplished with the use of the water soluble complexes of polyvalent metal ions and ammonia plus appropriate wetting agents and protective colloids. The paper stock was saturated according to the standard impregnating procedures and heated slightly to regenerate the divalent ions which in turn set the particles uniformly on the fibres.

In Fig. 2, the synthetic rubbers are on the left in all cases and the resins on the right. The crude paper as control is shown as the last bar on the right. Here, we have studied the relative merits of the synthetic rubbers as compared with alkyds, vinyl, and styrene. It will be seen that for burst, tear, and tensile,

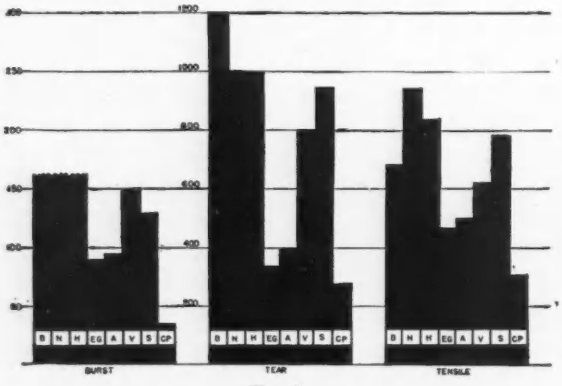


FIG. 2

Impregnation of Paper.
B—Buna S-type 3; N—Neoprene; H—Hycar; EG—Ester gum; A—Alkyd; V—Vinyl 59-6; S—Styrene; CP—Crude paper.

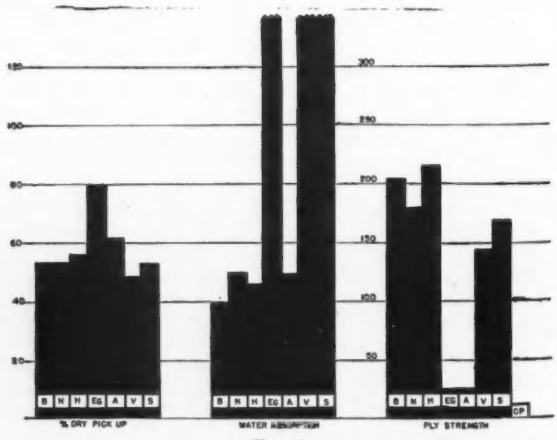


FIG. 4

Impregnation of Paper.
B—Buna S-type 3; N—Neoprene; H—Hycar; EG—Ester gum; A—Alkyd; V—Vinyl 59-6; S—Styrene; CP—Crude paper.

ester gum and alkyds are inferior. Where these properties are not important, the alkyds, because of their relative cheapness, are used as extenders. Another important result is that synthetic resins can be made to approach the properties of the synthetic rubbers. Plasticized styrene and vinyl acetate can be made to show properties approximating those of Buna, Neoprene, or Hycar. As can be seen, the burst, tear, and tensile are quite comparable. The uniform cut off on the burst for Buna, Neoprene, and Hycar is due to the limitations of the Mullen tester whose gage limit is 160 pounds. Each of these materials was stronger than the highest reading of the Mullen tester available for this work.

TABLE X.—PROPERTIES OF VARIOUS ADHESIVES

Sodium Silicate	Low cost, odorless, medium moisture resistance, high bonding, aqueous solvent, applied cold. Being inorganic nontoxic, noninflammable, vermin proof. Hard, brittle—confers rigidity. Being alkaline—attacks inks and colors.
Starches and Dextrins	Low cost, odorless, poor water resistance, aqueous solvent. Used cold usually either slightly acid or alkaline. Now made water resistant by urea HCHO. Not insect or vermin proof. Bonds fair.
Glue and Gelatine (other protein adhesives)	Medium cost, some odor, bonding fair, aqueous solvent, applied hot.
Cellulose and Resin Solutions	Relatively high cost. Initial odor but dried films can be made odorless. High moisture resistance and bonding strength. Solvents applied cold. Almost any resin or cellulose derivative capable of being dissolved can be used.
Hot Melts	Resin or cellulose derivative; rubber-wax, asphalt. Wide cost range. May be made odorless. High moisture resistance. Eliminate cost and danger of solvents.
Rubber Cements	Includes natural and synthetic rubbers—cold or hot vulcanizable. High flexible bonding strength, pressure sensitivity. Natural rubber gives low solids, synthetic can get high solids.
Emulsions and Latices	Cost medium to high. Easy to use. Films can be made water resistant, flexible. Can be made heat sealing, pressure sensitive, or vulcanizable. Controlled penetration. High bonding strength. Water as diluent. Cellulose and resin solutions can be converted to emulsion form.
Films	Self supporting films of thermoplastic resins as cellulose acetate or vinyl are occasionally used as laminants by being placed between the surfaces to be heat-pressure laminated.

TABLE XI.—METHODS OF APPLICATION

I. Solution
- A. Better adhesion to some surfaces.
- B. Required because of unique properties of some materials such as high melting point.

II. Emulsions
- A. Obviates use of solvents—lower cost, less hazard.
- B. Better adhesion to surfaces receptive to aqueous media.
- C. Greater concentration of solids can usually be applied particularly with high molecular weight resins.
- D. Penetration or lack of penetration as desired—especially for porous papers.

III. Hot Melts and Calendering
- A. Eliminates solvents or cost of emulsification.
- B. Eliminates retention of minute amounts of solvent.
- C. Greater continuity of films.
- D. Eliminates drying problems—increases production rate.
- E. Difficulty miscible elements more readily incorporated as waxes.

For proper use of synthetic as well as natural rubbers, compounding is necessary. Fig. 3 shows the relative effects of compounding. The results charted here are about 10% better than those of the unmodified latices. Recent work has improved the compounded latices to 25% and 40% over the uncompounded. The treated sheets improve with age. These data will be reported in detail in the near future elsewhere.

Data on pick-up of dry solids, per cent water absorption, and ply strength are presented in Fig. 4. Because of careful sensitization, the dry pick-up is fairly uniform except for ester gum. The vinyl and styrene had poor water resistance. A subsequent paper will show how this poor water resistance has been overcome. In ply strength Hycar was best; the vinyls and styrene surprisingly good; and the alkyds and ester gum poor.

Post-War Implications Affecting the Paper Industry*

By Maurice Deutsch[1]

Abstract

A cellular waterproof paper core has been developed which lends itself to all types of construction work. It may be used as a form for concrete work or covered with metal, plywood, or plastics depending on the characteristics desired for the particular structural application. The development promises to be of great importance in the construction of prefabricated buildings.

Mention is also made of property-life insurance whereby insurance principles are applied to mills and their equipment to provide for their replacement when they reach obsolescence.

Post-war readjustments to meet the need for technological and economic changes will require serious consideration of the present and future financial stability not only within the paper industry but in all industry. The world trend is toward higher standards of living which necessarily will result in many changes, most of which will be reflected in higher production costs. It is only with the development of new products and new methods of manufacturing the same, that the economic stability of the post-war world can be assured. The paper industry may be an important factor in the future through the continued development of its present products and by the adaptation of engineering principles which heretofore have been neglected. It should also be recognized that a modernization of the manufacturing equipment must also be considered if a favorable economic balance is to be maintained between costs and selling price as development is contingent on the stability of the producer.

It is believed that the application of engineering principles is a new approach for the paper industry and that a consideration of its possibilities will evoke more than a casual interest. The continued development of new kinds of paper, while not absolutely essential, will contribute toward an increased usage of other products which are comprised wholly or partly of paper.

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[1] Member TAPPI; Consulting Engineer, New York, N. Y.

Paper Structural Units

One of the first products in which paper is a principal component to conform to engineering principles is the Dur-I-Cell system. In this application, waterproof paper forms are so constructed that they may be used in concrete work. The "grid and box girder" principle makes it possible to develop the strength necessary for the prefabrication of panel units which may be used in housing and in all types of construction jobs. The special paper core is used as the mold into which concrete is poured and it is left as a permanent part of the structural unit. The form is so constructed that the panel in addition to having the required strength also has the cellular nature which is so necessary for excellent insulation properties.

The value of this product is further enhanced in that the form, which is made of corrugated or solid paperboard, may be covered with materials such as plastics, plywood, plastic wood, or metal to form a section complete in itself for those applications in which concrete is not necessary. The use of cement or concrete is most advantageous when permanence is desired as it is able to withstand more severe climate conditions and greater stresses. In this later connection, a new, low cost, fire- and waterproof cementitious material, weighing only 32 pounds per square foot, is now available.

Housing

This development in which paper is a basic component has a promising future in that it possesses the essentials required for structural work, namely: permanence, rigidity and strength, good insulation properties, inherent fire resistance, flexibility of application, and permits low cost scientific ventilation.

The primary use for a product of this type at the present time is in prefabricated housing. Of course it is to be recognized that a wider application is to be expected in the future.

During the time of the World's Fair, facilities were provided to test the design and a sample floor unit, 8 feet wide and 25 feet long was cast in cement using one of the cellular paper cores. This proved to be very successful, meeting the rigid requirements of the engineers and architects.

In addition to the structural characteristics which are so much desired, in fact required, in construction work, the advantages in regard to their insulation and fire resistant qualities add to their utilitarian

Fig. 1
Examples of Various Paper Forms

Fig. 2
Casting a Slab Around an Inner Paper Core. Rapid Setting of Concrete Using Vacuum

aspects. The war has shown how important protection from fire is and so fireproofing should be considered in any construction program. We in this country have not been subjected to fire bombing as have the British, but the lessons learned by them should be taken by us. Figures compiled by the various insurance companies indicate that damage by fire during the year amounts to a staggering total, of which we are not generally aware since it is not concentrated in a single area. The paper core makes possible economic prefabrication of fireproof housing. This writer's experience indicates that prefabrication by mass production will not be successful unless fireproof and waterproof materials are used.

The use of these paper forms is not confined to any type of building being equally adaptable to permanent or demountable housing. The floor, wall, and roof units may be made using concrete or other suitable materials to secure the necessary structural properties while other combinations can be used for those units which do not have undue strain imposed upon them such as partitions or insulating barriers. The construction of the building may be a complicated design specified by the builder or may be simple to facilitate rapid construction for emergency housing demands imposed by disasters and like situations. In short it is the paper industry's response to the possibilities offered by the housing programs which have been proposed for the future.

Many of the war uses for this type of product are readily apparent such as in the construction of light weight demountable buildings and barracks which can be assembled rapidly. In their heavier form in which concrete is used, bombproof shelters, and the like may be erected quickly with a low labor requirement, saving the wood normally used. The cells of the paper forms may be filled with sand to prevent damage from incendiaries and shell fragments.

Aside from the varied uses of the cellular paper panel in construction work, necessary for the protection and housing of military personnel, by changing the design, these same forms may be readily converted into pontoons and floating platforms which are required in fording and docking operations.

Ship Construction

This panel development is also of great importance to the shipping industry. Much has been written of late regarding the construction of concrete ships. during the rearming period of both World War I and World War II the critical position of iron and steel forced maritime circles to consider the possibilities of ships made of concrete. That they have not been entirely successful can be traced to numerous factors but it is believed that the use of these special

panels would aid in the solution to the problems involved. While hull construction is of great importance the use of paper panels for bulkheads and partitions would also be advantageous from the standpoint of weight, their insulation properties and, the fact that they are hollow which reduces difficulties in wiring, piping, and ventilation.

Lifeboats and rafts can be made of very high buoyancy and of such design that they can be suspended from ceilings and located on the deck where they are instantly made ready if the occasion arises. Their application to ship construction includes the use of these panels in ship salvage as it was by the division of the Lafayette into sections from which the water was removed by controlled pumping that this great ship was righted. The flexibility and light weight of the panels is a primary advantage in this type of work. "Pumping in buoyancy" using the waterproof cores to displace water has interesting possibilities.

From ship salvage to the construction of cofferdams is logical as similar principles are applied. A successful application was made of these units in the erection of the Edison Memorial Bridge where it was found that they performed satisfactorily from the structural standpoint at a considerable economic edvantage in regard to material costs and time.

This has been a brief summary of some of the uses of an engineered structural unit in which paper is applied. It is impossible to complete a listing of installations where a light weight, cellular panel of great strength can be adapted when one considers that the paper of which it is constructed is capable of innumerable variations in basic properties. The further combinations which involve coverings of metals, plastics, plastic wood, etc., are also limitless. With prefabrication the keynote of the future, one can expect that it will be found throughout most modern building structures.

Laminates

The future of paper base laminates has already been the subject of many discussions, and numerous items are now being made for a wide variety of uses. One use which has captured the public's fancy has been the introduction of laminated materials into airplane construction. It should be realized that the very factors which make it valuable for planes are the ones which apply equally well to the construction of homes and buildings which are planned for the future. The modern kitchen will certainly be benefited by molded cabinets and stain resistant tables. In its decorative form it will be used throughout the modern home—fire resistance alone will compel the architect to include it in his specifications while the contractor will be attracted by the ease with which it can be erected. Paperbase laminates with the paper core as a support has many applications.

FIG. 3
Concrete-Paper Panel for Floors, Wall and Roof

By the use of a new process, the sap in wood can be replaced with a plastic material which results in a strong, insect-, water- and warp-proof seasoned wood within 24 hours. When cut into veneer and laminated to paper it produces a very attractive wallboard. Various colors can be applied during impregnation so that it will have a wide usage in the novelty field.

PAPER PIPE

Paper pipe made with thermosetting plastics such as Texet or Duro-Film can be used to handle almost any liquid or as conduits for electrical wiring. In larger sizes they can be used for ventilating purposes. The machinery is already in use for spiral, convolute, or concentric winding of paper tubes. All that is required is the enterprise to enter a field in which paper has not been a factor and to do sufficient research to widen its applicability. An example of their practicability is a waterpipe made of paper and coal tar pitch which was in service for 62 years (1865-1827). The line was a mile and a half long connecting the town reservoir with the Boston Rubber Shoe Company at Malden, Mass., and was laid underground with a section passing through marshy ground so that in places it was wet inside and out for the entire length of service. Many new materials have been brought forth in late years which improve on the coal tar and paper combination and the application of these compounds will produce a very strong and light weight pipe or tubing. One paper company even now is manufacturing a paper pipe for use as drains and soil pipe. Then too a paper pipe has been developed which can be threaded in the conventional manner; is acidproof, and will withstand temperatures of 250 degrees.

In the development of the necessary materials and their application in the manufacture of paper pipe, problems are encountered similar to those met in paper containers, which are designed to meet severe packaging conditions. The successful solution to these problems will have a far reaching effect on the the packaging field and will further extend the influence of the paper industry. The containers now on the market are an indication of the future. There are many other uses for paper available when the newly developed war technique in chemistry, physics, and engineering is applied. It is up to the engineers in the paper industry to coordinate and let the engineers associated with designers and contractors and with government agencies, know of the characteristics of these newly developed paper and paper products, and the benefits which they will contribute to postwar public welfare.

One of the most important needs of the industry will be a national research agency under the management and direction of the industry and for the benefit of all associated therewith. There are many new materials and methods to be segregated and those most useful coordinated so that they may be put to early use. Through a central research agency these various improvements in manufacture and conversion of paper may be developed and distributed to those firms equipped to make use of same. Those thus aided will contribute proportionally to costs of such research agency.

Aside from technological progress in the paper and pulp industry, there are considerations of great im-

portance that we have now been forced to make. These are economic and political.

Engineering has flooded the public mind with such rapid progress in technological improvements for constructive and destructive purposes that it now behooves the engineer and economist to realize that post-war readjustments will require serious consideration of the effect on present and future financial and social stability and security and to find remedies to prevent more dangerous consequences than even war.

Only brief reference can now be made to a very important remedy, a new credit system. After several years of careful research this is now coming to the front for consideration by many government, banking and industrial agencies.

Property-Life Insurance

A method has been found that should do for the paper industry and others more than any other heretofore applied system to stimulate employment of capital and labor so that it will maintain security and stability for capital (the people's money) and labor (the people's wealth). The underlying principle of all modern insurance is basic and mathematical honesty. By the application of actuarial (mathematical) formulas it has been found possible to employ a system of so-called life insurance of property that would be similar in application to the established principle of human life or endowment insurance.

On May 19th, 1937, Gov. H. H. Lehman, of New York State, signed the first property-life insurance legislation in America. Similar legislation was passed in Illinois in 1938 and is pending in other states. The insurance laws of New York State have been amended, permitting the application of carefully defined insurance rules, so that a building, machine, ship, utility, railway, or other tangible property may be insured by well-organized insurance companies, operating under state supervision. By the payment of an annual premium to such insurance company (usually not more than the bookkeeping item of 3% entered for depreciation but generally representing a bookkeeping item only, and no cash reserve) a carefully developed system of property-life insurance is applied. This would function about as follows:

After the life-period of a property or equipment to be insured has been determined and sufficient amount of such an insurance business has been set up, upon payment of an annual premium, the insured will receive from the insurance company at the end of the life-period, the sum insured, which is intended to be the replacement value of the property. During this life-period, in the event of damage or destruction of any machine or structural part of the building, foundation, walls, roof, etc., the amount necessary for the replacement of same may be obtained from the insurance company, similarly if marked depreciation and obsolescence after the first few years warrant changes be made in the structure. Such paid amounts, are, however, deducted from the full-insured-amount that would be due at the end of the insured life-period of said property. Such replacement insurance is exclusive of insurance for fire, earthquake, tornado or damage from the air.

Annual premiums paid on property life insurance should be a deductible expense. But the refund at the end of an insured life-period of property may be partially a new source of tax revenue. The building up of a continuous source of insured capital will thus stimulate employment of capital and labor, and aid in relieving the tax burden.

The application of property-life insurance, together with sounder methods of production, standardization, distribution and merchandising by stimulating a more stable system of employment of capital and labor will not only bridge the gap of conversion from war to post-war, but will introduce factors that will do most to strengthen our democratic form of government.

F. W. Adams in New Position

Frederick W. Adams has been appointed director of research of the Clark Thread Company of Newark, N. J., and associated companies and will make his headquarters at the New York offices of the company. He will be responsible for the development of

FREDERICK W. ADAMS

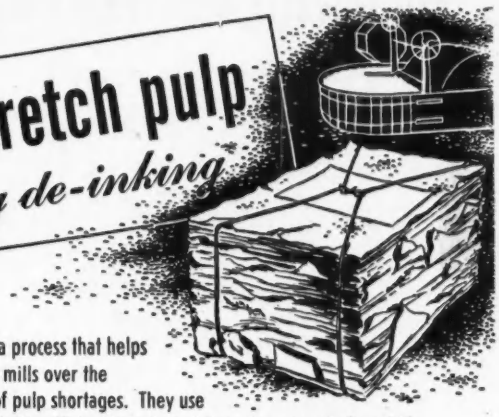
plans for the coordination and expansion of research within this organization. Dr. Adams was formerly associated with the Pittsburgh Plate Glass Company in their product development department. He is a member of The Technical Association of the Pulp and Paper Industry.

New Magnetic Motor Starter

A new magnetic, reduced voltage cage motor starter, which protects motors from sustained overloads, locked rotor condition, single-phasing and overloading from too frequent starting, has been announced by the Allis-Chalmers Manufacturing Company, Milwaukee, Wis. This is accomplished in the new starter —called type "ARC"—with an accurately calibrated, thermal overload relay. Built for general industrial applications, the new starter is now available for control of motors from 5 to 2,500 horsepower, up to 5,000 volts, 3-phase, 50 or 60 cycles.

Reduced voltage, two-point starting is obtained with a built-in auto-transformer, utilizing accurate, synchronous motor-driven, adjustable timing relay for transition from starting to running position. (Units rated through 800 h.p. have built-in auto-transformers; above 800 h.p., auto-transformers are furnished for separate mounting.) Interrupting capacity rating of the new starter is ten times the motor's full load current.

stretch pulp *by de-inking*



Here's a process that helps to take mills over the hump of pulp shortages. They use Metso Sodium Metasilicate to de-ink waste paper stocks, which results in a cleaner pulp as well as a whiter pulp. One of our mill customers turns out a smooth sheet with a high quality feel*, which is made from 5% virgin pulp and 95% de-inked stock.

Metso with its quick wetting, effective dispersing and emulsifying powers can improve your results in de-inking waste paper stocks (it works on rotogravure and magazine stocks too). Send for full particulars now. *Sample on request.

PHILADELPHIA QUARTZ COMPANY • DEPT. B, 121 S. THIRD ST., PHILA. 6
Sodium Metasilicate U. S. Pat. 1898707

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WRITE FOR BULLETIN #706

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THE CORROSION RESISTANT ALLOY

CAST • ROLLED • FABRICATED
for all equipment exposed to corrosion by sulphite acids
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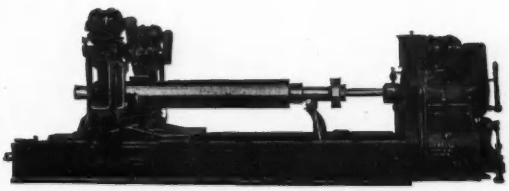
Appleton Wires are Good wires

APPLETON WIRE WORKS, INC. APPLETON, WIS.

The First Cost . . . is The Last

Heavy machines of the type used by the paper making and allied industries may be considered to "last a lifetime." Once purchased, they need not be replaced—under normal conditions —for many years.

Obviously it pays to make a purchase of this kind with care. Lobdell machines, backed by the Company's 108 years of experience, can be relied upon to turn out a quality product . . . it's difficult to beat their record for good performance . . . it's equally hard to beat their record for long service.



The Lobdell Roll Grinder is the culmination of years of experience in the manufacturing and refinishing of rolls for the paper, textile, fibre, rubber, paint, oil and similar industries. New features that contribute to greater safety, more accuracy, faster grinding and increased economy have been added to the basic principles which made the earlier Grinders leaders in their field.

This Roll Grinder is used to produce the extreme accuracy and high degree of finish required on the working face of new chilled iron rolls. It is also used to refinish the faces of rolls that through use or abuse, have become unfit for service.

The cost of protecting and transporting rolls to and from a shop equipped with such a machine, and the added delay in getting them back in production, has made it highly desirable for the modern mill to have its own grinding machine to recondition, not only the chilled iron calender rolls, but other items of equipment as well.

The choice of many leading mills is the Lobdell Roll Grinding Machine . . . now further improved by the addition of an exclusive, patented grinding wheel In-Feed device which makes roll grinding completely automatic.

The new Lobdell catalog presents a detailed description of Lobdell Roll Grinders—made in three sizes—together with other up-to-date machinery for the paper and allied industries. Write for a copy today—on your letterhead, please.

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New York Paper and Pulp Market Review

OPA Raises Waste Paper Ceiling Prices — Kraft and Wrapping Types of Paper are Scarce — Pulp Allocations for Third Quarter Further Limits All-Over Paper Output — Cotton Rags Active

Office of the PAPER TRADE JOURNAL.
Wednesday, July 19, 1944.

Steadily increasing war requirements for pulp for nitrating and paper and board for packaging supplies for the armed forces, continues to maintain a tight supply situation in some types of paper. No relief from this situation can be expected in view of the heavy demands of the war. The pulp and paper industry has the capacity to produce the output needed, but manpower to supply pulpwood is short. As paper is so essential on both the war and home fronts, it is likely that more paper for civilians may be included in WPB plans to increase the supply of consumers' goods.

Scarcity of kraft paper and container board and all wrapping papers, including bags, is reflected in reports received this week from many manufacturers' representatives, jobbers, and general paper merchants.

Paper production for the week ended July 8, a holiday week, was estimated at 53.8%, compared with 66.2% for 1943, with 69.7% for 1942, with 95.2% for 1941, and with 91.1% for the corresponding week for 1940.

Paper board production for the week ended July 8 was 60.0%, compared with 69.0% for 1943, with 52.0% for 1942, with 77.0% for 1941 and with 72.0% for the corresponding week for 1940.

In commenting on the conservation of paper, the July Industry Report of the Department of Commerce states in part, that, "Every user of paper must carefully consider ways and means of accomplishing a well-planned paper conservation program, and at the same time weigh the relative essentiality of paper use with the thought of eliminating all unessential applications and reducing the less essential uses. . . . The voluntary cooperation of domestic paper consumers, in terms of general conservation and relative essentiality of utilization, remains the primary controlling factor. . . . The policy of WPB is that nothing resembling censorship is practical, directly or indirectly, in the type of printing which shall be done on the authorized consumption of printing papers."

Wood Pulp

Pulp allocations for the third quarter aggregate 2,601,000 tons for paper, compared with an authorized production of 4,342,000 tons. Authorized production in the second quarter was 4,346,000 tons of which 2,654,000 tons were allocated to paper.

Pulp allocations for paper board for the third quarter total 2,813,000 tons, compared with 2,869,000 tons in the second quarter. To equalize the burden on pulp producers, the Department of Commerce reports, it was necessary to withhold 15% of the chemical wood pulp production of integrated mills for market distribution.

Rags

Mill demand for new cotton cuttings is active and is expected to broaden as less wood pulp becomes available. The new cotton rag market is strong with prices firmly held at ceiling levels by a strong, steady demand.

Buying of old rags continues active. All grades are in a strong position. Prices are firm at ceiling levels.

Old Rope and Bagging

Mill demand for Manila rope is urgent and supplies are less than required to fully meet total requirements. All hard fibers are in active demand. Sisal is active as it is more extensively used to replace the very scarce Manila fiber.

Trading in old bagging continues at a low rate. Demand is limited. Prices are soft and continue nominal.

Old Waste Paper

The OPA announced on July 17 that ceiling prices for ten basic grades of waste paper are now in effect, the prices increases ranging from $2 to $5 per ton. New ceilings on baled paper stock are as follows: No. 1 news, $20; No. 1 mixed, $19; overissue news, $22; old corrugated containers, $28; mixed books, $22; No. 1 heavy books and magazines, $38.50; extra Manilas, $39; No. 1 white ledger, $46; No. 1 colored ledger, $40; mill wrappers, $22. Changes in Amendment No. 8 to Maximum Price Regulation No. 3—Waste Paper, explains baling differentials and changes made in specifications.

Twine

Demand is currently reported active on all available twines. Prices are firm and no important change in demand or prices has been reported during week.

Pulpwood Widely Bought

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., July 17, 1944—H. F. Bullard, of Finch, Pruyn & Co., states that the great demand for pulpwood brought about by the war has greatly enlarged the buying area of consuming mills. Pulpwood is now bought almost anywhere from which it can be readily hauled to the mill, he claims, and as a result many new areas are producing it. Many farmers with no experience in pulpwood production are now finding it a profitable as well as a patriotic enterprise, according to Mr. Bullard.

WANTED
PLANT ENGINEER

Well established manufacturer has excellent opening for experienced paper mill or boxboard engineer. Prefer man experienced in cylinder board machine operations. Must be college graduate in engineering. Prefer man 35-40 years of age. Desire man capable of assuming greater responsibility in future. Salary $6,000.

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Large stocks carried at all times, permitting prompt shipments . . . Uniformly high purity of 99½% or better . . . Free of arsenic, selenium and tellurium.

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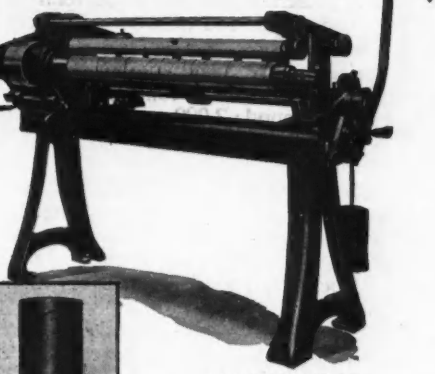
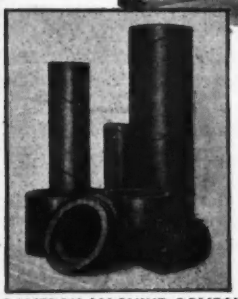
Mine: Newgulf, Texas

CAMACHINE
High Speed Tube Cutter

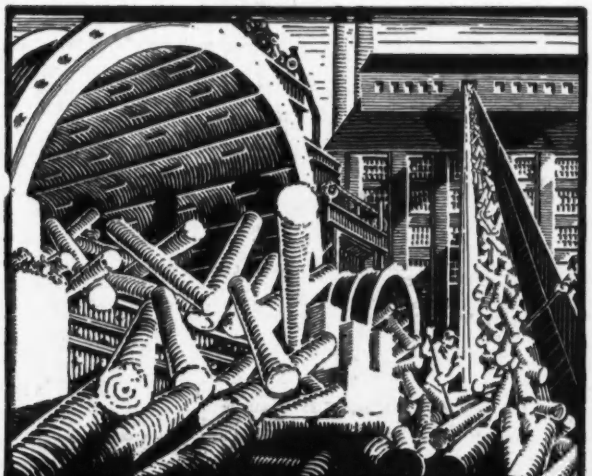




CAMACHINE
High Speed Tube Cutter

This gang cutter cuts spiral tubes into proper lengths to manufacture containers for shells, ammunition, paints, soap powders, etc. Write for interesting details.

CAMERON MACHINE COMPANY, 61 Poplar Street, Brooklyn 2, N. Y.
MID-WEST OFFICE, 111 W. MONROE ST., CHICAGO 3, ILL.



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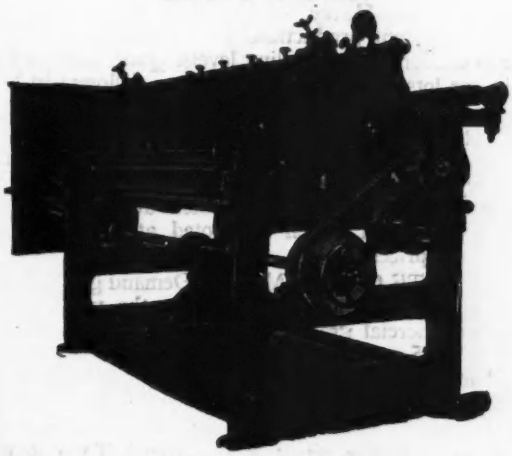
CAUSTIC SODA
FOR PULP & PAPER

STAUFFER CHEMICAL COMPANY
(NIAGARA DIVISION)

420 Lexington Avenue, New York 17, N.Y. 444 Lake Shore Drive, Chicago 11, Illinois

MODEL 28

ROLLER BEARING CUTTER



HAMBLET MACHINE CO.
LAWRENCE, MASS.

MAKERS OF
SINGLE, DUPLEX AND DIAGONAL PAPER CUTTERS
CUTTER KNIVES, PATENT TOP SLITTERS.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL.
Wednesday, July 19, 1944.

BLANC FIXE—Prices on blanc fixe continue to conform to prevailing quotations. Demand is reported fair. The pulp is quoted at $40 per ton, in barrels, at works. The powder is quoted at $60 per ton, f.o.b. works.

BLEACHING POWDER — Demand is reported heavy. Production is heavy and the balance between supply and demand is reported good. Quotations are unchanged. Bleaching powder is currently quoted at from $2.50 to $3.10 per 100 pounds. All prices in drums, car lots, f.o.b. works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24¼ cents per pound; less than 2,000 pounds, 24¾ cents per pound f.o.b. shipping point.

CAUSTIC SODA — Demand heavy. Deliveries are steady. Market is tight. Prices unchanged. Solid and flake scarce. Solid caustic soda is currently quoted at $2.30 per 100 pounds. The flake and ground are currently quoted at $2.70 per 100 pounds. All prices in drums, car lots, f.o.b. works.

CHINA CLAY—Current demand is reported moderate on many grades of china clay. Quotations unchanged. Domestic filler clay is quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mines. Imported china clay is currently quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Demand heavier with market reported definitely tight at this date. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b. works.

ROSIN—The rosin market reports lower prices on some grades this week. "G" gum rosin is currently quoted at $5.42 per 100 pounds, in barrels, at Savannah. "FF" rosin is currently quoted at $5.42 per 100 pounds, in barrels, at New York. Seventy per cent gum rosin size is currently quoted at $5.69 per 100 pounds, f.o.b. works.

SALT CAKE—Prices on salt cake continue to be reported unchanged. Demand fair during the current week. Domestic salt cake is currently quoted at $15 per ton, in bulk. Chrome cake is currently quoted at $16 per ton. All quoted prices in car lots, f.o.b. shipping point.

SODA ASH—Heavy demand for soda ash is reported to absorb current production. Market tight. Prices continue to conform to prevailing levels. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prospects of good corn crop reported. Future supply situation much improved. Demand continues heavy and in excess of available supplies. Prices unchanged on starch. Pearl is quoted at $3.72 per 100 pounds. Powdered starch is quoted at $3.83 per 100 pounds. All prices in bags, car lots f.o.b. Chicago.

SULPHATE OF ALUMINA—Demand good. Supply situation is reported satisfactory for the week. Prices of the commercial grades are currently quoted at from $1.15 to $1.25 per 100 pounds. The iron free is currently quoted at $1.85 per 100 pounds. All prices in bags, car lots, f.o.b. works.

SULPHUR—Current consumption of sulphur continues heavy. Market situation unchanged. The quotation on annual contracts continues at $16 per long ton, f.o.b. mines. The current price on contracts at Gulf Ports is $17.50 per long ton.

TALC—Demand reported moderate. Domestic grades are currently quoted at from $16 to $21 per ton at works.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—			
Roll, contract...	*$58.00	@	—
Sheets	66.00	"	—
* OPA Maximum Price.			

Kraft—per cwt.—Carload Quantities
Zone A, f.o.b. Mill

Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping...	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag.....	*4.375	"	—
* OPA Manufacturers' Prices.			

Tissues—Per Ream—Carlots

White No. 1.....	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½....	1.00	"	—
White No. 2.....	.90	"	—
Anti-Tarnish M.F..	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—

Toilet—1 M. Sheets—Per Case

Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet....	5.70	"	—

Paper Towels, Per Case—

Unbleached, Jr.....	2.20	"	—
Bleached, Jr.	3.20	"	—

Manila—per cwt.—C. l. f. a.

No. 1 Jute.....11.25		@	—
No. 1 Manila Wrapping, 35 lb....	6.00	"	6.25
No. 2 Manila Wrapping, 35 lb.....	5.75	"	6.00

Boards, per ton—

News *48.00		@	—
Chip *48.00		"	—
Sgl. Mla. Lt. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards...	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items,
Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items.
Delivered in Zone 1:

	Bonds	Ledgers
No. 1..	$10.55@$12.75	$11.70@$14.25
No. 2..	9.65 " 11.75	10.80 " 13.25
No. 3..	9.20 " 11.25	10.35 " 12.50
No. 4..	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper.
Delivered in Zone 1:

No. 1 Glossy Coated...	$13.65	@	$15.50
No. 2 Glossy Coated...	12.40	"	14.00
No. 3 Glossy Coated...	11.60	"	13.25
No. 4 Glossy Coated...	11.15	"	12.75
No. 1 Antique (watermarked)	10.25	"	11.75
No. 2 Offset	9.60	"	11.00
A Grade E. F.....	9.35	"	10.75
A Grade S. & S. C...	9.60	"	11.00
B Grade E. F.	8.85	"	10.25
B Grade S. C.	9.10	"	10.50
C Grade E. F.	8.55	"	9.75
C Grade S. C.	8.80	"	10.00
D Grade E. F.	8.25	"	9.50
D Grade S. & S. C. ..	8.50	"	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight Not Exceeding OPA Allowances.

Bl. Softwood Sulphite.....	$86.00
Unbl. Softwood Sulphite.....	74.00
Bl. Hardwood Sulphite.....	83.50
Unbl. Hardwood Sulphite.....	71.50
Bl. Mitscherlich	81.00
Unbl. Mitscherlich ..72.00 @	82.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphate...	82.00
S. Semi Bleached Sulphate...	75.00
N. Unbl. Sulphate.....	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	72.00
Unbl. Soda	68.00
Groundwood	50.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area).....	10.50
West Coast (out area).....	16.50

	50%-80% Air Dry Weight
Northeast	11.50
Lake Central	11.50
Southern	14.00
West Coast (in area).....	9.50
West Coast (out area).....	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags
(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1..	6.50	@	7.25*
Silesias No. 1.....	—	"	5.75*
New Unbleached...	6.75	"	7.50*
Blue Overall	—	"	5.50*
Fancy	—	"	3.50*
Washables	—	"	3.00*
Bleached Khaki Cuttings	—	"	4.25*
Unbleached Khaki Cuttings	—	"	3.50*

* OPA Maximum Prices.

PRICE & PIERCE »»»»»»»ltd•

Wood Pulp & Paper Agents

60 East 42 Street New York. N. Y.

SIMPLICITY

NASH VACUUM PUMPS HAVE ONE MOVING PART

Operating advantages made possible by the Nash principle, and present in no other type of vacuum pump, permit a new level of operating economy. Nash Vacuum Pumps have but one moving part, a rotor cast in one piece, and revolving without metallic contact. There are no valves, no pistons or sliding vanes, no internal parts requiring wear adjustment or lubrication.

NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

J. Andersen & Company

21 East 40th Street

NEW YORK

Importers of Pulp

BLEACHED AND UNBLEACHED SULPHITE, KRAFT PULP AND GROUND WOOD

Kalamazoo GLAZED TILE

— The Finest Material for Paper Mill Needs —

Hundreds of paper mill executives and engineers know that Kalamazoo Tile construction costs less—lasts longer—controls stock better—requires less maintenance—and is more flexible as to size or design in meeting production layouts.

No other material equals the smooth, hard surface that is impervious to most chemicals—flushes clean—does not flake, pit or scale—and is free from friction.

Should fins—midfeathers—agitators—round—square or tapered ends, corners and bottoms be needed—the exclusive Kalamazoo method makes it easy to construct and moderate in cost, usually less than reinforced concrete.

Ask for engineering data.

Kalamazoo TANK & SILO CO.
KALAMAZOO - MICHIGAN

Old Rags

White, No. 1—			
Repacked	*3.80	●	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings	2.25	●	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.25	●	4.35
Wool Tares, light	4.25	"	4.50
Wool Tares heavy	4.50	"	5.00
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	2.00	"	—

* OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	●	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Mixed Books	1.10	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Mixed Ledger, colored	2.00	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.95	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
Old Corrugated Containers	.87½	"	—
Mill Wrappers	1.10	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	●	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17½	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill.)

Shirt Cuttings—	
New White No. 1	.07¼
New White No. 2	.05¾
Light Silesias	.05¾
Black Silesias, soft	.03¾
New Unbleached	.07½
Washable Prints	.04¼
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable shredding	.01¾
Fancy Percales	.04¾
New Black Soft	.03¼
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04¼
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¼

Domestic Rags (Old)

White No. 1 — Repacked	3.80	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2 — Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
No. 1 Clean bright—			
Sisal Strings			.04
No. 2 Clean bright—			
Sisal Strings			.03
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	2.25	"	2.50
No. 2	1.75	"	1.80
Wool Tares No. 1	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings	2.50	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.40	"	—
Overissue News	1.00	"	—
No. 1 News	1.00	"	—

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled	2.87½	●	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	—	●	2.75
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	—	"	1.55
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	5.25	"	—
Jute Cer. Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	—	"	2.50
South American	—	"	3.00
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
New Zealand Wool Pouches	—	"	3.25
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

* OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	●	.04¾
Fancy Percales	.04¼	"	.05
New White No 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06¼
Underwear Cutters, Bleached	.06¼	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¾
New Black Silesias	.03	"	.03¾
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¾	"	.03¾
New Canvas	.06½	"	.06¾
B. V. D. Cuttings	.06¾	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	●	—
Miscellaneous	3.20	"	—
White No. 2—			
Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.20	"	—
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—
No. 2	1.45	"	—
No. 3	1.35	"	—
No. 4	1.35	"	—
No. 5, Quality A	1.35	"	—
Quality B	1.20	"	—
Quality C	.95	"	—
Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.30	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
White Blank News	1.65		
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—